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The OIL and GAS JOURNAL

PRODUCING REFINING ENGINEERING MARKETING

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OR A
WIGGINS BREATHER

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LOSSES

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OR A
HORTONSPHERE

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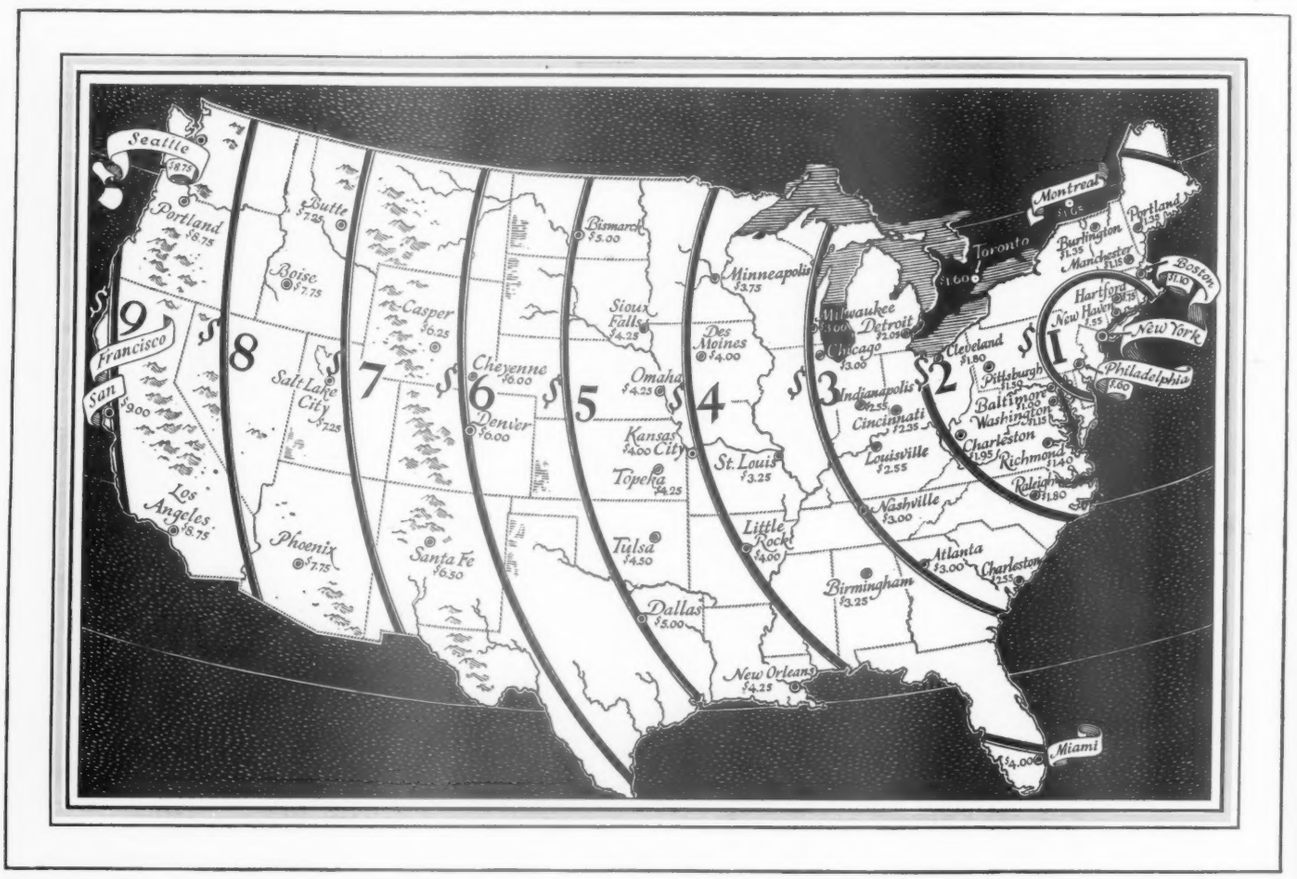
Advertisers' Index on Page 25 Table of Contents on Page 26

Look how Far your Telephone dollars now Go



WHEN one fish company calls all of its customers everywhere every Monday morning, and conducts all of its business by telephone. . . .

When a single packing house, in one month, receives 1500 calls from its territory ordering meats. . . .

When a flour salesman spends $65 for out of town calls and brings in $500,000 worth of orders in a month. . . .

When this whole magazine might be filled with similar experiences, is it not important that every business man should know how little telephone calls now cost?

There have been rate reductions in 1926, in 1927 and on February 1 of this year. The map shows how far your telephone dollars now go, whether you talk between neighboring cities or half-way across the continent.

What are the problems of your particular organization?

Some companies use Sequence Calls to save additional time. Some train special telephone salesmen. Many are now using the Key Town Plan and Credit Plan for their traveling representatives. How could telephone calls save and earn the most for you? A letter or call to your local Bell business office will bring skilled minds to work with yours. Meantime, what pending out of town transactions could be hastened by telephone? Bell Telephone Service . . *Quick* . . *Inexpensive* . . . *Universal.*

AMERICAN TELEPHONE & TELEGRAPH CO. AND ASSOCIATED COMPANIES — BELL SYSTEM

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XUM

Upward Climb of Production Halted

Highest daily average estimated total production in 1928, week ended Dec. 29, 2,585,844 bbls. Lowest in 1928, May 19, 2,338,241 bbls.

Oklahoma Chiefly Responsible. Co-operation of Oil Company Executives and Activity of Institute Hopeful Sign

By Andrew M. Rowley

Highest daily average estimated light oil production in 1928, week ended Dec. 29, 2,158,134 bbls. Lowest in 1928, Mar. 3, 1,927,713 bbls.

For the first time since the week ending November 3, 1928, the daily average production of crude oil in the United States registered a decline last week in both total production and the output of light oil. The decrease was due chiefly to the drop recorded in Oklahoma where cold weather early in the week tended to curtail production while the proration agreement put in force in the Seminole area during the last two days of the week resulted in a substantial decline in output in that section. If efforts to make this agreement effective are successful, Oklahoma should register another decline in output for this week.

California recorded another gain in output last week but it was somewhat smaller than previous increases and it is expected now the first peak in production for the Santa Fe Springs Field will be reached in about 15 days although this may be followed later in the year by another peak resulting from present deeper drilling there.

From the first of last December to and including the week ending February 9 of this year, crude oil production in the United States registered a daily average increase of slightly more than 181,000 barrels daily. In addition, there was every sign this gain would continue and there is no doubt it would have done so but for the efforts to conserve the output and hold production more nearly to market requirements.

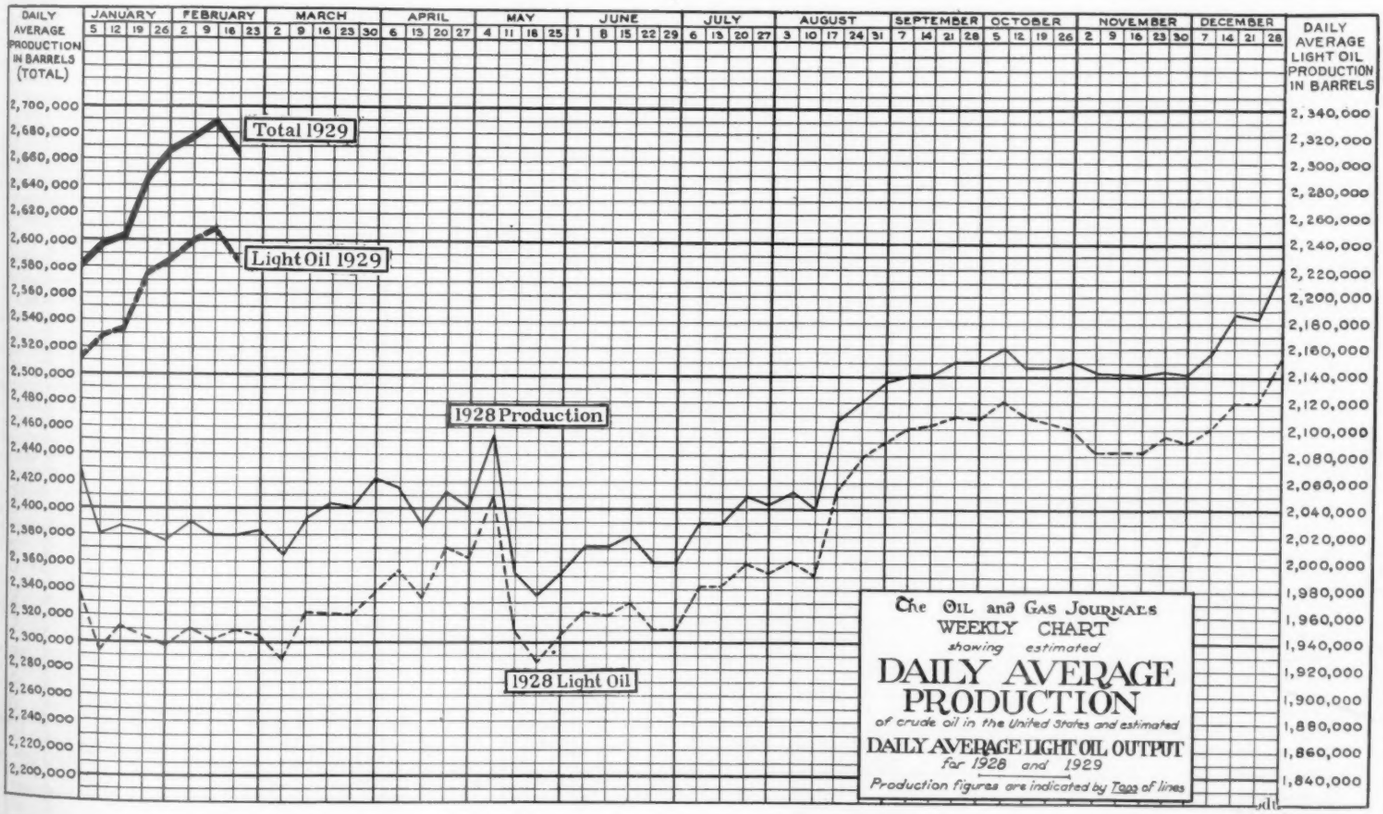
The most hopeful sign in the entire situation is the active support being given the conservation movement by leading oil company executives throughout the country and the fact the American Petroleum Institute has definitely pledged its efforts to eliminating overproduction and consequent waste. The appointment by President Reeser of the regional committees to study the situation and the fact the whole matter will be threshed out by the general committee not later than March 15 indicates the Institute is taking an active interest in the matter.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended February 16, and a comparison with the previous week follows:

	Feb. 16		Feb. 9	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	10,740		10,890	
Burbank	22,135		22,940	
Other Osage Fields	25,930		25,970	
St. Louis-Pearson	122,885		128,865	
Cushing and Shamrock	20,335		20,545	
Bristow	18,910		18,935	
Allen	27,290		28,930	
Seminole	287,810		297,985	
Northern Miscellaneous	114,615		115,370	
Southern Fields	56,785		57,390	
Total Oklahoma	707,435		727,820	
West Texas—				
Hendricks	164,831		169,021	
Yates	83,912		82,561	
Remainder	123,396		123,767	
Total West Texas	372,139		375,349	
North Louisiana	30,295	5,850	30,325	5,390
Arkansas	25,795	51,045	25,930	51,300
North Central Texas	135,668		137,336	
Texas Panhandle	52,850		56,915	
East Central Texas	22,089		21,556	
Kansas	95,840		95,585	
Total Mid-Continent Area	1,442,111	56,895	1,470,816	56,690
Gulf Coast		141,170		142,649
Southwest Texas		51,174		50,262
Eastern	108,000		110,000	
Rocky Mountain Area	73,168		72,683	
California—				
Santa Fe Springs	194,000		188,000	
Long Beach	178,000		177,000	
Torrance	2,000	12,500	2,000	13,250
Huntington Beach	47,000		47,500	
Elwood	22,000		23,000	
Inglewood	16,000	11,000	16,000	11,000
Ventura Avenue	54,500		54,500	
Seal Beach	32,000		30,000	
Remainder of State	58,000	168,000	58,000	167,000
Total California	603,500	191,500	596,000	191,250
Total United States	2,226,779	440,739	2,249,499	440,851
Grand Total	2,667,518		2,690,350	

→ **Total Decrease, 22,832 Bbls.; Light Oil Decrease, 22,720 Bbls.** ←



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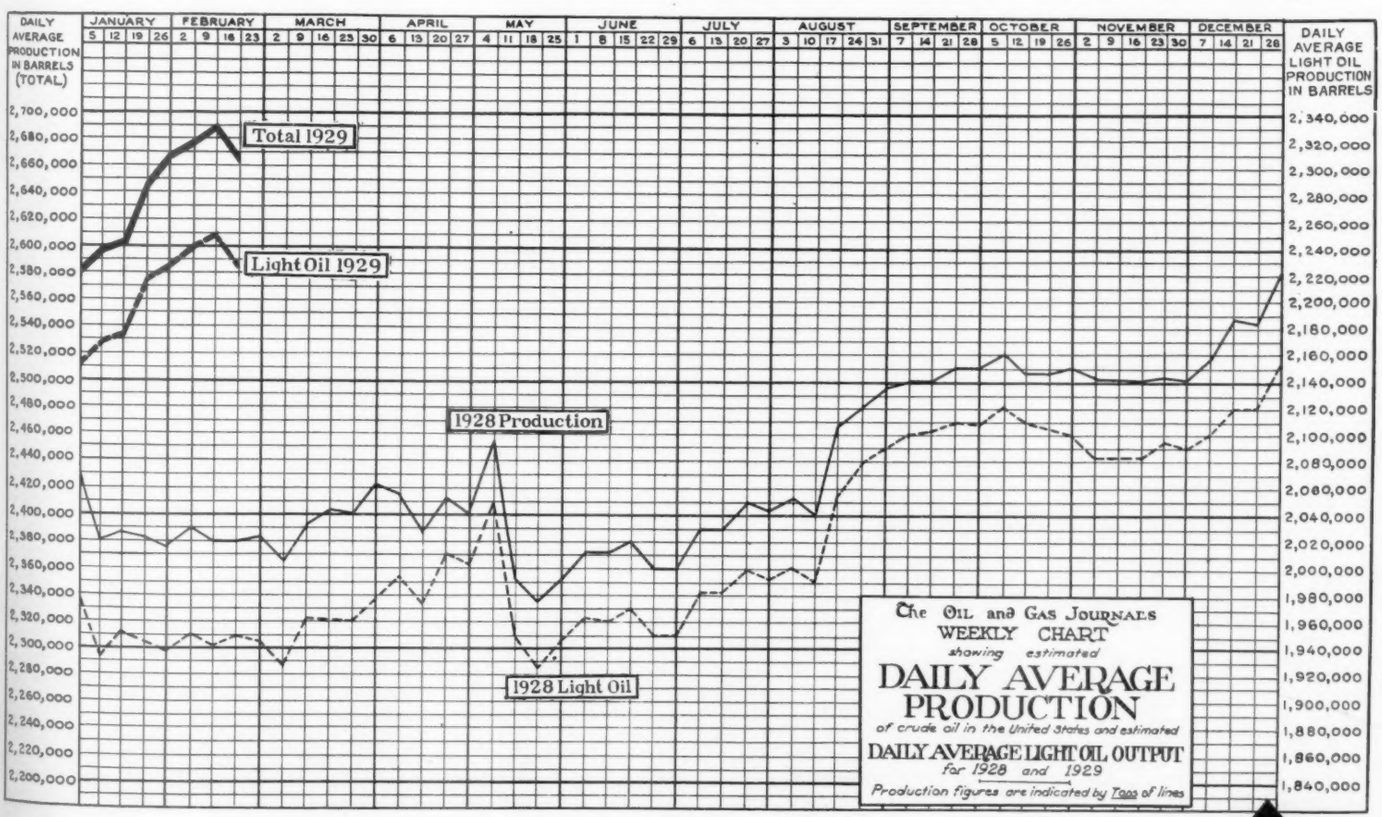


Several Products Strong in Oklahoma

Prices on Natural Gasoline, Kerosene and Better Grades of Gas Oils and Distillates Advance. Little Change in Refinery Gasolines

By C. O. Willson

Strength in several products again overshadowed in importance the weakness of the remaining products in the Oklahoma (Group 3) refinery market during the past week.

Natural gasolines, kerosenes, furnace distillates, gas oils and the better grades of fuel oils all advanced during the week. Wax prices were steady after the slump of the previous week and cylinder stocks of all kinds continued strong. The movement of refinery gasolines outside of the contracts has been slow since the first of the month. On the whole, however, refiners were holding to the prices established early in the month.

The continued strength in natural gasolines discounts the predictions of weakness made late in January. Steady buying coming to a large extent from three of the larger manufacturers in Oklahoma is keeping distress material off the spot market and brought about a general advance of one-fourth to one-half cent a gallon during the past week. The recovery in Grade BB was particularly noteworthy. The Grades BB and C were lagging behind the A and AA grades early in the month. One of the large manufacturers in Oklahoma has been buying large quantities of the BB grade during the past week. The price advanced steadily so that on Tuesday 6 cents was considered the going market.

Curtailed Operations.

Among the natural gasoline manufacturers there is considerable discussion as to the effect the curtailed crude oil operations in the Greater Seminole area will have on the natural gasoline output in Oklahoma. An up-to-date check on production in Greater Seminole by areas and companies will be found on page 130 of this issue. The present production of approximately 1,000,000 gallons daily represents more than 50 per cent of the total production of the state. For this reason any substantial decline in the Greater Seminole output will be an important factor in the entire Mid-Continent market.

The curtailed crude oil operations will have some effect on the volume of gas available and if the Sunday shut-down idea spreads a substantial reduction in output is assured.

REFINED MARKET BAROMETER

A reduction in California prices was the most important development of the week in gasoline markets. California refinery prices for both domestic and export movement were reduced 1 cent following a 2-cent reduction in gasoline tank wagon and service station prices on the West Coast. The reductions follow a long period of price cutting, which was particularly acute in the Los Angeles Basin. Outside of California there were no important price changes in refinery gasolines. Weather conditions in some areas have reduced gasoline consumption to a minimum, and this has been reflected in a dearth of business at refineries. Natural gasoline prices were reduced along with refinery gasoline in California, but in the remainder of the United States the market was strong. A brisk demand for kerosene was reported in practically all areas, and prices advanced in the Mid-Continent and Middle West. Furnace oil distillates are in strong demand, and prices were advanced whenever any changes were made. Fuel oil prices generally were unchanged during the past week, although the high-gravity grades are in demand. The lowering of prices on several grades in the Gulf Coast was the only price change in neutral oils. Cylinder stocks continue strong. More activity was apparent in the wax market.

Mid-Continent—Kerosene prices higher in all areas. All oils suitable for furnace oils also strong. High gravity, low cold test fuel oils strong. Natural gasoline prices higher. Refinery gasoline prices lower in North Louisiana and Arkansas. No change in lubricating oils and wax.

East Coast—Market marking time. Active demand for kerosene and prices steady. Lubs oils and wax more active. Fuel oils sluggish. Export gasoline market steady.

Pennsylvania—Gasoline weak. Kerosene strong. Neutral oils unchanged. Cylinder stocks and wax market weaker.

California—Refinery gasoline and natural gasoline prices lower. Few grades of distillates also reduced. Fuel oil unchanged.

Chicago—Cold weather brings heavy demand for all grades of furnace oils. Kerosene also strong and prices higher. Better industrial demand for fuel oils. Refinery gasolines moving slowly, bringing lower prices from a few refiners.

Gulf Coast—Export prices unchanged. Several grades of pale and red neutral oils reduced. No change in fuel oils and gas oils.

It is impossible at this writing to make any definite predictions as to just what effect the curtailed operations will have. Offsetting, in part at least, these developments pointing to lower output, is the fact that plants are starting to operate in the newer pools of the Seminole area. The natural gasoline industry generally east of California occupies a strong statistical position and should be able to take advantage of a development which reduced the current supply.

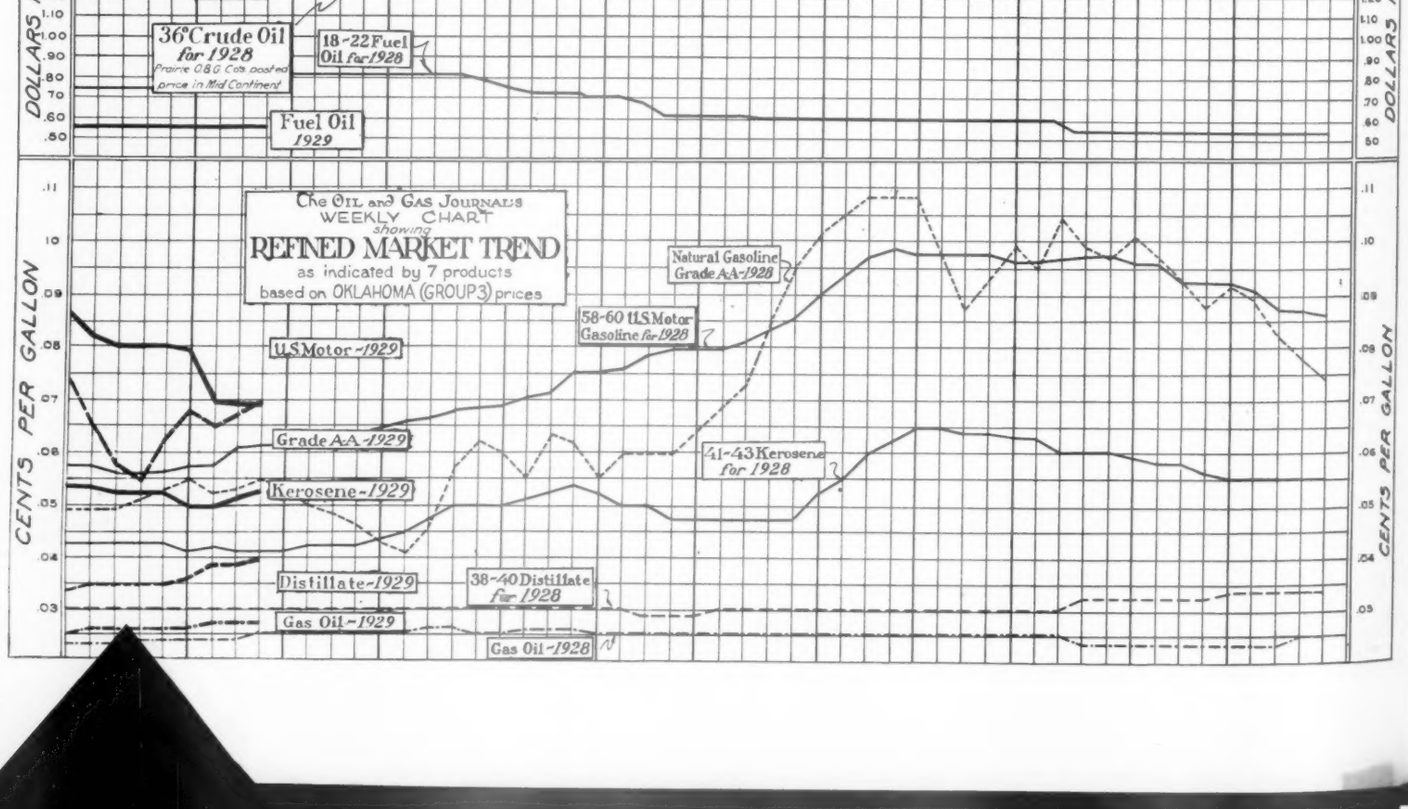
Kerosene Situation

Among refiners great interest is manifested in the kerosene situation. During the week prices advanced in most of the Mid-Continent refining areas. There are those among the trade who are predicting further advances until a price level is reached within one-fourth or one-half cent of the prevailing U. S. Motor gasoline price.

Regardless of whether or not these optimistic predictions materialize the available data do point to continued strength in kerosene over the next 90 days at least. The situation is largely due to manufacturing conditions. Improvements in refining processing tend to reduce the yields of kerosene. Part of the cut is added to the gasoline yield leaving a cut at many plants which is sold as distillate. In other words, as one plant operator explains, the manufacture of finished kerosene outside of a small yield secured direct from the crude is more expensive than increasing the yield of gasoline. This applies to many refineries operating with high gravity crude oils which formerly in the old skimming type operation gave a large yield of kerosene.

Another factor is the changing quality of the crude oils. Many of the newer

(Continued on Page 152)



Reeser Appoints Regional Committees

Leading Oil Men To Study World Overproduction Situation. General Committee To Meet Not Later Than March 15

Regional committees to study the petroleum situation in the United States, Mexico and northern South America, with the view of devising means whereby production of crude oil may be held more nearly to market requirements in these areas, have been appointed by E. B. Reeser, president of the American Petroleum Institute, under authorization of the action taken by the board of directors of the institute at its meeting in St. Louis, February 12. R. C. Holmes, president of The Texas Company, was named general chairman of the Committee on World Production and Consumption of Petroleum and Its Products. The regional committees will select their representatives to serve as members of the general committee and this general committee will meet in New York not later than March 15 to go over the reports of the regional committees and recommend whatever action may be deemed advisable.

Mr. Reeser outlined the work of the regional committees in the following letter which he sent to each member of each committee:

"In accordance with a resolution adopted by the executive committee of the American Petroleum Institute at St. Louis, February 12, 1929, you were appointed a member of the —— —— Regional Committee of the Committee on the World's Production and Consumption of Petroleum and Its Products.

"A complete list of the personnel of the four regional committees appointed is attached, from which you will note that there are committees as follows:

"Pacific Coast
"Atlantic and Gulf Coast
"Interior
"Mexico and northern South America.

"It is well known that most of the important oil fields throughout the world are producing an amount of crude in excess of the consumption in the markets geologically tributary thereto. This overproduction has developed such an acutely serious situation that the most complete co-operation lawfully possible is essential to prevent its further development and attendant waste.

Urged to Meet Promptly

"Each regional committee is urged to meet promptly and engage in discussions and co-operative action to hasten adjustments and assist in solving the problem, and in order that the general committee, which will be composed of R. C. Holmes as general chairman, together with the chairman of each of the regional committees, plus two additional members to be selected by the regional committees themselves, will have before them for consideration at least four suggestions or general plans, it is suggested that each regional committee give its consideration:

"First. To analyze the problems of production and consumption of petroleum and its refined products not only in the territory for the region of your committee, but all the world, giving particular attention, however, to the determination of methods whereby your particular area can lawfully adjust itself to the problem of producing as nearly as possible, only such quantity of oil as will supply its own natural geological markets.

"Second. To prepare and present a report to the general committee indicating conclusions reached as to its own area, and suggestions for the proper and effective application of your plan and the part this area can and will endeavor to play in co-operative action with the other regions, looking toward properly balancing overproduction at least on the Western Hemisphere.

"Third. It is suggested that if such co-operative measures as you may determine desirable either in your region or other regions, do not appear to be feasible because of existing laws or other difficulties, your committee shall make suggestions for such corrective measures as would appear to be helpful in arriving at the solution of the general problem before us.

"The committee should not feel limited in the extent to which they should study the entire problems and activities in other branches of the industry which might through proper co-operation or regulation, assist in improvement of the production and economical situation.

"Fourth. Each regional committee chairman is requested to call promptly a meeting of his regional committee that the work may be got immediately under way and its report prepared for submission to an early meeting of the general committee, to be called by Chairman Holmes in New York not later than March 15.

"This work is of such importance to the industry that it is hoped by the executive committee of the institute that no committeeman designated will fail to serve. However, in order that each regional committee meeting be fully represented, members are authorized to select alternates, and members of your committee should feel free to consult with other producers and refiners of petroleum products, not represented on the committee."

PERSONNEL OF COMMITTEES

PACIFIC COAST REGIONAL COMMITTEE
K. R. Kingsbury, Chairman

W. M. Keck	C. M. Fuller	R. F. MacMillan
Wm. F. Humphreys	L. P. St. Clair	E. L. Doheny
Ward B. Blodgett	C. D. Olmsted	G. L. Jones
L. T. Barneson	R. A. Broomfield	Roy M. Bishop
A. C. Diericx	D. F. Ewing	George L. Machris
W. C. McDuffie	H. P. Grimm	

GULF COAST AND ATLANTIC SEABOARD COMMITTEE
George S. Davison, Chairman

C. F. Cullinan	Herbert L. Pratt	E. R. Brown
Frank R. Coates	R. C. Holmes	J. C. Van Eck
W. S. Farish	George T. Whaley	W. C. Teagle
Henry M. Dawes	W. M. Irish	J. Howard Pew
H. F. Sinclair	E. H. Buckner	A. J. Byles
	M. F. Yount	

INTERIOR REGIONAL COMMITTEE
W. C. Franklin, Chairman

E. F. Blum	F. P. Parriott	Roy P. Jones
H. B. Earhart	E. W. Sinclair	A. M. Landon
O. D. Donnell	W. E. Smith	E. J. Marston
H. V. Foster	B. N. Stephens	R. W. McIlvain
E. DeGolyer	H. R. Straight	D. J. Moran
F. B. Fretter	L. W. Young, Jr.	R. Ogarrio
W. C. Holliday	William N. Davis	J. Edgar Pew
S. H. Keoughan	W. S. Fitzpatrick	W. G. Skelly
John H. Markham, Jr.	T. A. Dines	Thomas B. Slick
Henry McGraw	Jacob France	R. W. Stewart
E. H. Moore	Wirt Franklin	L. H. Wentz
J. F. O'Donohue	John L. Gray	U. deB. Daly

MEXICO AND NORTHERN SOUTH AMERICA COMMITTEE
E. J. Sadler, Chairman

Herbert J. Carr	R. G. Stewart	George H. Smith
F. A. Leovy	A. E. Watts	F. J. Huffman
	Richard Airey	

Partial State Control in California

Failure of Operators to Eliminate Gas Waste Thought Likely to Result in Compulsory Regulation by Legislation

By L. P. Stockman

LOS ANGELES, Calif., Feb. 16.—The failure of California operators mutually to eliminate gas waste because a small minority refused to co-operate and thus voided the initiation of constructive conservation work will undoubtedly result in compulsory regulation of production in certain flush fields in the near future. A bill which provides for compulsory conservation of natural gas has already been presented to the State legislature and it is likely this measure will become a law shortly as it has the approval of all progressive operators. No attempt will be made under its provisions to prorate or artificially cut the production of crude oil except as it will be affected by reducing the surplus production of natural gas. It is quite obvious, of course, that crude oil production will be reduced to a certain extent as it is impossible to cut down natural gas production without affecting the output of oil. The primary object, however, is to eliminate excess gas production and any reduction in crude oil production will reflect the pinching in of excess natural gas.

The bill now before the legislature is the outgrowth of an unsuccessful attempt to eliminate waste of natural gas at Santa Fe Springs by using excess production for storage and repressuring work in the upper depleted zones. Approximately 85 per cent of all operators at Santa Fe Springs approved the proposed constructive conservation work, but the 15 per cent minority steadfastly refused any concerted attempt to eliminate the waste of natural gas. The bill now under consideration by the legislature will, if passed, force all minority interests to join hands whenever a majority in any field decides to undertake conservation of natural gas either through the pinching in of producing wells or by initiating repressuring work. The new bill has sufficient teeth to guarantee enforcement and this measure may be in operation within six months unless something unforeseen develops. The matter has been taken out of the hands of operators and placed under control of the State Mining Bureau. Each of the seven oil and gas commissioners will have direct supervision of all operations in his specific district and will be charged with the responsibility of enforcing the new law.

Approval of State

This measure has the approval of the state administration and therefore appears certain of passage, especially in view of the fact that Governor Young's Conservation Committee will undoubtedly exert every bit of pressure possible. It will become effective 90 days after passage unless an emergency clause is attached, in which event it will be operative immediately upon enactment. It is not the intention of the sponsors of this new bill to step promiscuously into any district and change present production tactics if there is no appreciable wastage of natural gas. The primary object is to provide means whereby compulsory regulation will become obligatory if individual operators cannot mutually agree upon a definite basis for work. The new bill provides for compulsory regulation under state supervision in any field when a majority of operators deems it necessary to undertake conservation work in order to reduce waste of natural gas. This is especially apropos of the situation at Santa Fe Springs where a small minority has been holding up work and it is likely this field will receive first consideration immediately upon passage of the bill. Long Beach and Ventura Avenue will also probably come in for consideration although excess production of natural gas in the former field may be elimi-

(Continued on Page 151)

Looking Forward With Confidence

Because a Majority of the Leaders in the Industry Are Actively Aiding in Balancing Supply With Demand

By Howard S. Bryant*
Skelly Oil Company

A very important factor entering into the crude oil situation in 1927, and becoming a major factor in 1928 is that of shut-in oil reserves. The bulk of such shut-in reserves are in West Texas, California and Wyoming, and although most of this amount is measured by one-hour gauges at the wells and this practice is not considered reliable in giving a true picture of what these wells would do if produced over a longer period of time, and although transportation and storage facilities have not been developed to handle such reserves, a large amount of crude is shown to be easily available. This amount is in size far beyond the capacity of the present oil market.

It will be observed that when there are large ready oil reserves, the oil market will regulate the supply to be drawn upon, and under such conditions only such an amount will be produced as will be needed.

The rule that the oil demand regulates the oil supply is operative similarly in times of closer balance or in times of overconsumption just as well, taking into consideration movements of oil prices. The effect is harder to see, however, due to the premature discounting of a favorable oil market in the usual form of an oil price rise ahead of time, and also the reverse price lowering with a lag. This is in no small part due to the eagerness of many oil production men to see the return of better conditions before they are justified, and to their tendency to ignore any impending bad conditions until the latter event actually occurs.

Importance of Growing Demand

Consumption plus exports of all products has increased at a rather regular rate from year to year, during the past. Estimates of average daily consumption for 1928 were made early in that year and appear to be substantiated by a consumption so far of about 2,770,000 bbls. a day over the year. A careful estimate of consumption involving a study of trends for all products indicates an average daily consumption of 2,745,000 bbls. for the last three months in 1928, and the first 3 months in 1929. Average daily consumption plus exports over all 1929, assuming a normal rate of increase, to which there has been no appreciable exception in several past years, will approximate 2,945,000 bbls. a day, an increase of about 200,000 bbls. a day over the average of 1928.

The normal decline of old settled fields is an important part of the picture. This decline is generally estimated at 20,000 bbls a day monthly, and we may therefore expect a normal yearly decline of about 250,000 bbls. per day in settled production.

Considering the country as a whole, from 35 to 50 per cent of the total production at any one time can be considered as flush production, which has a relatively rapid decline. The average for the past 5 years has been close to 40 per cent flush. The amount which flush production declines in any one year cannot be directly applied to another year, due to the differences in the way wells of one area decline as compared to those in another.

Taking into account a yearly increase in consumption of 200,000 bbls. a day, and a yearly decline in the older settled fields of the United States of some 250,000 bbls. a day, it is necessary to produce, during a normal year, some 450,000 bbls. a day of new oil supplies to keep up with consumption. Due to the additional great decline of the present flush production, it may be necessary during the next year to bring to the market a total of between 600,000 and 700,000 bbls. daily of new oil, in order to balance demand.

To supply this 600,000 to 700,000 bbls. daily, we have at present in sight an increase of 100,000 to 200,000 bbls. a day from the shut-in wells in West Texas, when the additional transportation facilities now planned will permit; a probable increase in the Mission, Maud, St. Louis and Allen areas of Seminole of 150,000 to 200,000 bbls. a day; 150,000 to 200,000 bbls. from Santa Fe Springs and Elwood Terrace in California, and a potential import of another like amount of oil from Venezuela, aside from new oil fields recently proved in southeastern New Mexico, at Oklahoma City, Okla., and in Sedgwick County, Kansas. In summation, there appears to be a supply of oil already in sight sufficient to supply the country's needs during the next year.

Viewing the situation at the present time, supply and demand seem to be in such relation as not to warrant the stimulus of even a moderate rise in the price of crude oil until after the first half of the year, or likely not until the season of sigh consumption, next fall.

A moderate price rise in the summer or fall will be expected to precipitate a widespread wildcat drilling campaign in Oklahoma and Kansas, where the number of new wells has been held down to lowest levels since early in 1927. The effect in West Texas would be to cause the probable release of an additional amount of shut-in production, and to stimulate the building of more pipe lines and storage facilities in that district.

Importance of Shut-in Crude Oil Reserves

The amount of potential oil supply in the form of shut-in reserves has mounted rapidly, and as drilling defines new production in amounts beyond the demand of consumption and exports, the shut-in reserves will receive additional potential volume.

The oil industry is enjoying the longest period of stabilized prices in its history, and for an average of one year production has been held to within 80,000 bbls. a day of consumption, with a potential production conservatively estimated at twice the total amount actually produced. The economic goal of any industry is to develop to that position where prices of its products are stabilized. It is believed that the crude oil producing industry has made fair progress in this direction. Although fluctuation in the price of crude will be observed from time to time, they are expected to be relatively small changes, unlike the ones occurring in 1921. The large shut-in oil reserves will prevent price fluctuations of a major degree.

Future Oil Supply

Each year, at present, must see the development of from 500,000 to 700,000 bbls. of new supply to fulfill the increasing demand and replace the decline of flush and settled production in that year. The late sentiment that our often-estimated underground reserves were about to give out has now been replaced

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Developments in Petroleum Refining

Increased Yields of Gasoline and Other Products in Manufacturing Operations Tends to Lessen Quantity of Raw Material Needed

By H. W. Camp*
General Superintendent of Refineries, Empire Oil & Refining Co.

The past year has had no revolutionary change in the process of petroleum refining; however, there have been improvements and developments in practically every phase of operation due largely, perhaps, to economic pressure.

A few years ago, a Mid-Continent skimming plant using 35 degrees gravity crude, obtained 28 per cent gasoline and naphtha; 9 per cent kerosene, and the remaining yield gave gas oil and fuel oil. Figuring manufacturing cost, but not including sales, transportation, overhead and depreciation, the realization was $1.45 per barrel of crude. Today, a thoroughly modern and up-to-date skimming plant, having all latest equipment, shows a realization of $1.74 per barrel on the same basis. Thus, it is evident that progressive developments have taken place in the last two or three years when potential earnings have been increased about 20 per cent.

The average refiner is compelled to exert his utmost ingenuity in order to operate with a profitable margin. He has two factors to consider—recovery of maximum yields of profitable oils and the reduction of operating expenses.

For the past eight years, the margin between price of gasoline and cost of crude has grown narrower, constantly. Both these prices are determined by external conditions and not by the refiner himself; however, the refiner might have been able to increase that margin had he more carefully controlled his output, limiting his production of light oils to current consumption.

Be that as it may, this same economic pressure has given impetus to progress in improvements of primary distillation equipment, including stills, towers and heat saving devices. A pipe still and bubble cap fractionating equipment can now replace a battery of shell stills, giving better yields, better control, elimination of rerunning and lowering of operating costs. The most recent pipe stills are being equipped either with radiant heat furnaces or air preheating systems and improved heat exchange equipment. These can be operated on the fuel consumption as low as 1 per cent of the charge as compared to a fuel consumption of 3½ per cent of charge on shell still batteries. Fractionation is now so controlled that almost any separation desired can be effected in one operation. Streams can be separated so that only a portion of the products will require treating or can be divided so as to retain antiknock properties and at the same time, eliminate gum-forming substances.

Shell Still Operation

It is sometimes uneconomical to write off a big investment of shell stills. Instead of abandoning these, it has been found profitable to equip them with air preheaters, improved furnaces, bubble cap towers and heat exchangers so that their efficiency may be comparable to pipe still installations. A recent development in shell still design is the addition of interior tubes with suitable headers which has improved the efficiency and presents a further possibility of utilizing old shell still batteries profitably.

There have been no recent marked changes in methods of treating in general but many improvements have been made and several new processes have been developed for special classes of oil. There is a tendency toward installation of continuous treating systems in preference to batch agitators. The adoption of recirculation in agitators has made a big improvement in batch treating. Regeneration of caustic is employed and the material is reused until causticity is as low as 2 per cent. Acid recovery systems are used which recover as high as 80 per cent of the acid, and even the litharge for sweetening gasoline is recovered many times over.

Operating expenses have been cut materially and refinery efficiency increased because of several factors, such as (1) better boiler house practice and more efficient boilers; (2) production of dry and superheated steam; (3) utilization of exhaust steam and feed water treatment. (4) One of the present practices is the installation of higher steam pressure boilers in connection with bleeder type turbines which enables the refiner to generate his electricity for refinery use at practically no added cost, as well as utilizing the same steam for regular processing. (5) Another innovation, so far as refineries are concerned, is water-cooled walls in boiler settings, thereby increasing materially the rating of the boiler. Acid sludge is now used for fuel while heretofore it was not only a waste product but also a nuisance.

Losses have been decreased through the installation of vapor recovery systems, vapor tight and floating roofs, acid sludge and b.s. recovery systems, and improved methods of loading and unloading volatile oils. Vapor recovery systems gather gases from stills, tanks, agitators and loading racks, then through an absorption process, recover about 85 per cent of the gasoline, the residue being burned for fuel.

Yields from Crude

The largest single factor for the advancement of refinery practice is the pressure still. Add sufficient cracking capacity to a skimming plant, in order to convert the heavier fractions into gasoline, and the yield increases from 32 to 66 per cent. The realization from a barrel of crude, considering higher manufacturing expense, increases from $1.74 to $2.44 per barrel and the gallonage of gasoline from a barrel of crude is doubled. Without the advent of the pressure still it is doubtful if the refiner could have kept pace with the rapid and tremendous increase in gasoline consumption. Had the refiner attempted to increase his skimming facilities to meet the gasoline consumption, obviously the fuel oil market would have been glutted, hence demoralized. Three factors are responsible for the rapid and efficient development of the pressure still; (1) the necessity for securing ultimate yields for economic existence; (2) the necessity for increased gasoline recovery in order to

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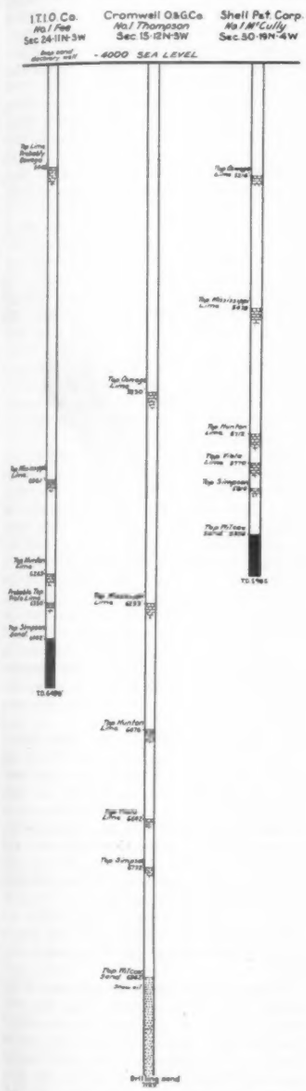
*A.I.M.E. meeting, New York, February 21.

Oklahoma City Well on Big Structure

Extends More Than Seven Miles Northwest and Southeast. Cross Section of Wells Develops Interesting Facts

By J. L. Dwyer

The Indian Territory Illuminating Oil Co.'s No. 1 fee, in Section 24-11-3w, Oklahoma County, Oklahoma, the deep sand discovery well of this region, is located upon one of the largest surface structures ever found in the state. This well, which penetrated the formation believed to be Simpson sand on December 4, 1928, was responsible for a complete revision of geological opinion regarding the possibilities of finding oil production in the central part of the state. It changed most completely the prospects of two trends, first, the region situated



Cross-section of three deep wells in Central Oklahoma.

between Oklahoma City and the Greater Seminole Field, and second, the region between the Chickasha gas field and the new well.

Prior to the discovery at Oklahoma City, there had been only a limited hope of finding good production in the Hunton, Simpson, or Wilcox horizons in this region. The well started flowing 200 bbls. hourly, and as this is written is maintaining a rate of 5,490 bbls. daily, an excellent record for sustained output.

The surface structure which is shown on the accompanying map has an exceptional area. The axis of it runs principally northwest and southeast traversing parts of four separate townships; no mere Wilcox "hickey" this. The southeast portion of the structure is found in Section 16-10-2w, and it runs 7¼ miles northwest to Section 15-11-3w.

North End Undetermined

Just what the conditions in the north end of the structure are, remain to be seen, for there is little or no control in that direction. Even the last three contours on the map are dotted, indicating an assumption rather than a definite contour.

The lowest part of the structure is found in the southeast sector where an elevation of 1,000 feet above sea level is found. From this point, the 10-foot contours run up to 1,110 feet for the majority of the region around the top, although there is one contour made with 1,120 feet. The latter covers only a limited spot in the northwest quarter of Section 36-11-3w.

The rise of 110 feet is accomplished in 2⅞ miles along the axis of the structure. The 1,110 and 1,120-foot contours embrace approximately 820 acres in Sections 25 and 36-11-3w, 30 and 31-11-2w, Section 12-10-3w, and Section 6-10-2w.

It will be observed that the majority of the drilling is being done around the 1,070 and 1,080-foot contours. The discovery well was also located between these contours. The general belief is that the deep well of the Cromwell Oil & Gas Co., in Section 15-12-3w, is situated to the west of the axis of the Oklahoma City structure. The latter test is now drilling in what is believed to be the Wilcox sand.

Much Drilling Activity

In spite of the great depth of the oil in this region, there is considerable drilling activity at present. There are 27 wells drilling on the part of the structure adjacent to the discovery well. The bulk of this drilling is within 2 miles of the discovery well. The completion of the drilling now under way calls for an expenditure of close to $5,000,000, for the least the completed wells in this region are expected to cost when the final equipment is installed is $150,000 per well.

This tremendous sum may be considered as running a considerable risk upon the part of the operators, but it may be justified by the thought that with the steadily increasing depth which drilling has taken in Oklahoma, there has been a corresponding increase in the oil recovery per acre, even if depressed price conditions have not permitted a profit which kept pace with the increase of depth.

A comparison of the logs of some wells drilled to the Wilcox in this region is interesting, and a cross-section of three wells is shown with this story. The wells compared are the Indian Territory Illuminating Oil Co.'s No. 1 fee, the discovery well at Oklahoma City; the deep test of the Cromwell Oil & Gas Co. in Section 15-12-3w; and the discovery well of the Lovell Field of Logan County.

The upper formations were omitted, as it was believed that they were relatively unimportant in making any conclusions regarding the Simpson or Wilcox horizons. The first level shown in the illustration is 4,000 feet below sea level. The Oswego lime was the first formation taken, and, as illustrated, the Indian Territory well found this stratum higher than either of the other two wells. The

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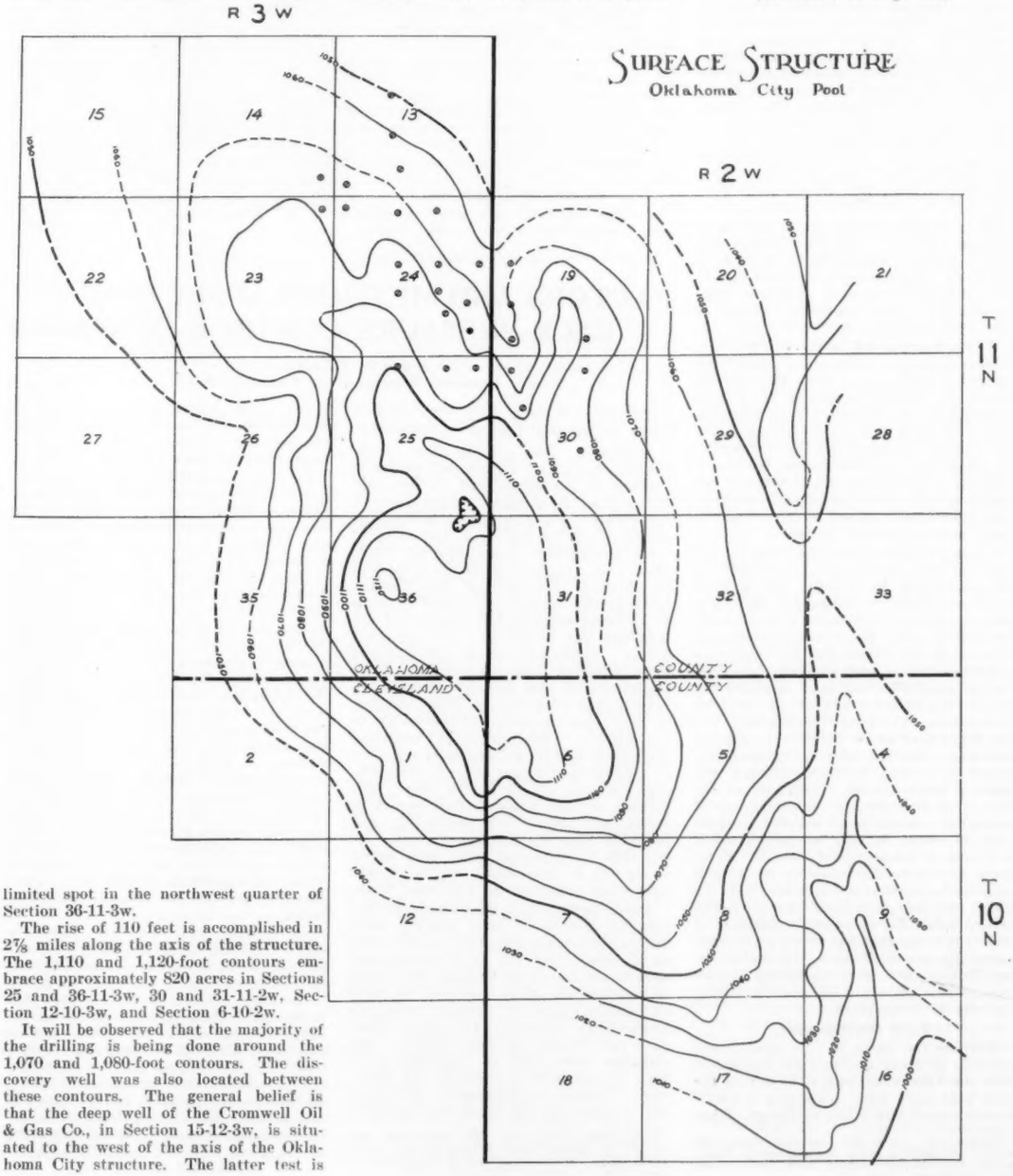

Development in Venezuela Is Orderly

Production Has Grown Rapidly, but Enormous Expansion of Reserves Has Taken Place at Same Time. Whole Fields Shut Down

By E. B. Hopkins and H. J. Wasson*
Petroleum Geologists, New York

Throughout 1928, production of oil from Venezuela steadily increased, and at the close of the year the output was at the rate of nearly 400,000 bbls. a day. The total for the year was approximately 106,500,000 bbls., representing an increase of about 66 per cent over the 63,000,000 bbls. produced in 1927.

Venezuela now stands next to the United States as the second largest oil producing country in the world and there is abundant evidence to suggest that this relationship will endure for a number of years.

Reserves were notably increased in the Lake Shore fields, and the potential output of the Maracaibo Basin is much greater than the current production. In spite of this, the percentage of production increase was comparatively moderate, and the rate of this increase continued to fall off slightly, as has been the case for the last three years. This does not suggest that further annual increases in Venezuelan output will not materialize; only that the rate of these increases appears to be on the decline, and that with every succeeding year the future tendency will be in the direction of a stabilized level of output. The following table shows the production trend of the country since 1925:

	Per cent
1925 increase over 1924	132
1926 increase over 1925	80
1927 increase over 1926	75
1928 increase over 1927	66

Many factors will work to prevent a reversal of this trend, but the principal ones are strong ownership in large acreage units, and the probable indisposition of the world market to absorb a more rapidly increasing Venezuelan output at prices profitable to the producers.

No Distress Oil in the Picture

The distress oil element is out of the picture in Venezuela; also, any unforeseen jump, such as results in the United States from the discovery of a Seminole or a deep sand at Long Beach, or Santa Fe Springs, is impossible in Venezuela, on account of lack of means for transplanting a sudden surplus of oil, and the slowness with which additional transportation equipment in the form of shallow-draft tankers can be obtained.

There will be a steady increase for the next few years but the advance will in all probability be orderly and will of itself cause little disturbance to the world price structure. Eventually, and possibly within a few years, the apprehension concerning the Venezuelan oil reserve as a market menace may give way to a feeling of gratitude that such reserves are within convenient reach of the western hemisphere. The present psychology, and general outlook of the industry, is steadily changing toward a more enlightened economic level, and with this change will come a more general recognition of the fact, already axiomatic in certain other extractive industries, notably copper, that a reserve is only a menace when it invites to excess exploitation. In Venezuela production has come to its present magnitude rapidly, to be sure, but the large rate of production is not inconsistent with the enormous expansion of visible reserves that has taken place coincidentally, nor with the initial capital expenditures that were necessary before any of this oil could be made available for world consumption.

Field Developments

Despite the facts of the case, there prevails in many quarters an impression that the Venezuelan operators during the past year have been conducting a greatly accelerated production campaign. What has actually happened is that at the close of the year two fields were shut down completely, and total drilling activity for the entire country was only slightly above its 1927 level. Increased production has come about principally as a result of finding more prolific territory rather than as a result of intensive drilling.

One new field, Hombre Pintado, has been added to the list of producers, though the output during 1928 was very limited. The Hombre Pintado Field, the real importance of which remains to be determined, was discovered by the Standard of New Jersey (now Creole), late in 1927. Several wells were completed last year, and a pipe line connection was made with the El Mene Field of the British Controlled Oilfields, where access to Lake Maracaibo is to be had through the British Controlled Oilfields line.

Hombre Pintado Field is in the State of Falcon, about 10 miles east of the El Mene Field, and appears to be another similar high-gravity oil field. The pay levels are encountered at depths ranging from 490 to 1,657 feet, and the initial production of the wells ranges from 100 to 400 bbls. In November, the three wells in the field that were definitely on production produced 1,693 bbls., or an average of about 20 bbls. per well per day.

Another Potential Area

Another potential area now approaching a producing status is the Totumo Field, of the Creole Corp. Totumo, also called Rio Palmar Field, is in northern Perija, near the Palmar River. The original discovery well was drilled back in 1914, but legal difficulties over title to the concession held up further development for years. With the legal situation straightened out, the Creole is going ahead rapidly, and at the close of the year had repaired the old discovery well, completed one new producer, and had four rigs running.

The depth of production is around 3,000 feet, and the wells completed have shown initial productions of up to 2,500 bbls. No pipe line outlet for this field has been constructed as yet, and some further drilling will doubtless be required to definitely prove up a field that will warrant this expense.

The Tarra Field, in the District of Colon, is rapidly approaching a shipping status. A 90-mile pipe line, leading from the field to the lake, is now under construction, and should be transporting oil by the middle of 1930. From wells already drilled, this field at present has a potential production of about 15,000 bbls. a day. Six strings of tools are busy drilling up more territory, and by the time the 20,000-bbl. capacity pipe line is completed, the field will be able to supply oil to the capacity of the line.

A fourth area, apparently on the verge of commercial production, is known as the El Mene del Salto (or simply El Mene) Field, in eastern Falcon. This property has been under development by the North Venezuelan Petroleum Co. for several years. These wells, thought to be of commercial importance, have been completed, with productions ranging from 100 to 400 bbls. per day. The oil has a gravity of 36 degrees to 40 degrees Baume, and the productive levels have been found from 700 to 2,000 feet.

Small Effect on 1929 Figures

The four areas just mentioned, Hombre Pintado, Totumo, Tarra and El Mene del Salto, are at present the most likely known sources from which new production may be expected to come. All of them together will have little effect, however, on the 1929 figures and in 1930 will scarcely add more than 30,000 bbls. per day to the Venezuelan total.

In addition to these four areas, which may be considered as near future potential fields, there were completed in 1928 two wildcat wells, which obtained oil in considerable quantity and appear to justify their being recorded as discovery wells. Both of these are in the District of Mara; the one being known as Amana No. 1, of the Venezuelan Gulf Oil Co. and the other Netick No. 1, of the Orinoco Oil Co. (Pure Oil subsidiary). In Amana several oil levels were encountered between 3,300 and 4,200 feet. The reported results of production tests indicate a rating of about 300 bbls. initial production for this well, the oil being 28 gravity. No further work is being done in the immediate vicinity of Amana, but the area is one that must be considered as at least semiproved.

The other likely looking wildcat test in Mara, Netick No. 1, was drilled by the Pure Oil Co. It struck a sand that tested 200 bbls. (flowing by heads) of 31-degree gravity oil. The well made about 350,000 feet of gas daily, with the oil, and recorded a closed-in pressure of about 700 pounds. The depth of the Netick oil level is around 5,300 feet, and though at this depth there is considerable question concerning the value of a 200-bbl. well, the showing may be considered as encouraging for commercial levels at greater depth, or more prolific sands, somewhere else in the same general area.

No Mara Oil on Market This Year

None of these operations in Mara will lead to immediate additions to the country's production. In each case the wells mentioned, and the other wildcats now drilling near them, are at a considerable distance inland from the lake, and pipe lines will not be justified until a substantial reserve is more or less definitely proved. No oil from Mara is likely to come on the market during 1929, and probably not until 1931 will this district figure prominently in Venezuela's output.

Of more immediate importance to the production picture even than the four mentioned potential fields is the wildcat program now getting under way in the District of Urdaneta. Two wells are at present drilling, and at least six more wildcat locations in this area are definitely scheduled for the near future. Some of these wells, including the two already started, will be on or very close to the shore. A prolific discovery in any of these close-to-shore wells can be quickly developed into a commercial field, as the land transportation problem at least is practically eliminated.

One other possible source of production during 1929 is the so-called Urumaco, or El Mamon Field, in Falcon. The presence of oil was first established here by a well drilled in 1927. This well, El Mamon No. 1, drilled jointly by the Standard Oil of California and the Beacon Sun Co., had to be abandoned

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FACTORS AND METHODS AFFECTING BACK-PRESSURE CONTROL OF WELLS

By H. C. Miller*
Petroleum Engineer, U. S. Bureau of Mines

Oil and gas flow from the reservoir sands to the well because of differences in pressure. The rate of flow is dependent upon the differential pressures existing in the sands and in the well. By altering the amount of back pressure maintained on the well, this differential pressure can be regulated and changed from a maximum (well flowing "wide open") to a minimum where there will be no flow. Oil and gas flow through the irregular channels in reservoir sands at different rates mainly because of the fact that one is a liquid and the other a gas. Therefore, because oil and gas have different characteristics of flow, application of back pressure changes the rates of flow with relation to one another, so that wide variations in gas-oil ratios are possible. Obviously, the formation gas energy will be utilized most efficiently when a unit of gas delivers the maximum amount of oil to the well. The amount of back pressure that should be maintained against the producing sand in order that the minimum amount of gas will be produced with each barrel of oil can be determined only by actual field tests made on the individual wells.

The extremely high back pressures that may be carried on large flowing wells during their early life, and the relatively small amount of gas that accompanies each barrel of oil to surface, show that very little energy is required to move oil short distances through reservoir sands when pressures are high. Efficient flow during the early life of a well demands back pressure approaching in force the pressure existing in the reservoir. Proper back-pressure control is also a means of controlling the encroachment of edge water; in many wells bottom water will "cone up" and prevent the oil from reaching the well unless back pressure is maintained.

Gas-Oil Ratios

The results of the application of back-pressure methods manifest themselves in changes in rates of production of oil and gas. The influence of such methods on recovery efficiencies is indicated by changes in the gas-oil ratio and more particularly in the trend of the gas-oil ratio curve.

The consensus of opinion among production engineers is that there is a certain back pressure, commonly known as the optimum back pressure, at which the formation gas-oil ratio is the minimum. A back pressure in excess of this optimum pressure will sometimes increase the gas-oil ratio because too much reduction in velocity of flow of oil and gas through the reservoir sands will cause increased slippage and by-passing of gas in the spaces between the sand grains. Too high a back pressure may be uneconomical also, because the rate of oil recovery will be too low, and if adjacent wells are allowed to produce at a lower pressure, oil may be driven to the offset wells.

In general, operators are prone to carry too little back pressures on their flowing wells to produce them efficiently. It is usually a short-sighted policy to consider current production only and to disregard ultimate recovery, but nevertheless many operators follow such a practice. Although no one can predict what the future may have in store for the oil industry, it is certain that if every operator would practice gas conservation and produce his flowing wells efficiently, overproduction of oil would be a thing of the past, and the country's ultimate

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E. H. Leroux Has Had Colorful Career

In Pipe Line President's Boyhood Much of the Color Was Daubed on His Attire, Making His Homegoing a Daily Adventure

By Thomas F. Smiley

When Eddie Leroux, 13, lanky and brimming with restless energy, used to slip into the house with his clothing daubed with paint, glue and miscellaneous splotches which he had accumulated in the barrel house of a nearby refinery, did his mother say indulgently, "Never mind, Eddie. Just burn that suit and put a clean one on in the morning. You will be president of a big pipe line company some day and this is a step on the road."

She did not. On the contrary, Eddie's practice of ruining his investiture by trying his hand at various jobs in the barrel house used to drive Mrs. Leroux to a degree of distraction that got her to wondering what ranked first among the causes of insanity, anyway. She had no more notion that Eddie would become the head of a great pipe line system than Eddie himself had. And at that time Eddie's idea of greatness was being a wax-house foreman.

At first Mrs. Leroux tried kindly admonition and endeavored to keep the boy busy with tasks around the house. Eddie seemed penitent, but when his mother's back was turned he would steal off to the barrel house again, to reappear later with the same old collection of smears. Wearied by persistent derelictions, the exasperated mother eventually applied a series of swift, sharp impacts at the anatomical point usually chosen for such operations. The results were negative.

Dad's aid was sought and when Eddie came home the next time looking like the flags of all nations the youthful culprit found himself at the receiving end of a stream of forceful, succinct language, climaxed by a smart kick in the direction of the same region to which Mrs. Leroux had given her attention. The kick didn't land, and in the crafty soul of him Eddie knew it wasn't intended to land. In a manner of speaking it was just a gesture. The paternal procedure was about as ineffective against the lure of the barrel house as Mrs. Leroux's had been. Homegoing developed into a sort of daily adventure for Eddie.

Heartening Sort of Philosopohy, That

Eddie had absorbed a bit of boyhood philosophy that was expressed in the formula, "A scoldin' don't hurt. A lickin' don't last long. Kill you they dassent." It buoyed him up in times of stress and trial. As one moved by the resistless urge of a high calling, he went on his paint-smeared, glue-stuck, grease-plastered way. And so in the course of time he became president of the Oklahoma Pipe Line Co.

The barrel house which seems to have played so colorful a part in the early life of E. H. Leroux was that of the Crystal Oil Works refinery, which is only a few hundred yards from the house on Pisgah Hill, in Rouseville, Pa., where Mr. Leroux was born in 1874 and where he passed his boyhood years. His father, Thomas Leroux, owned oil wells in the Bradford Field near Red Rock, Pa., and between sessions of the Rouseville school young Ed sometimes was allowed to go to his father's lease, where he was set at odd jobs. There are grounds for believing that Mrs. Leroux did not oppose her son's visits to Red Rock, that as a matter of fact she experienced a definite feeling of relief.

There was no financial reward in this for Ed. Only the sense of being useful. A sense of being useful did not appeal overwhelmingly to the boy at this stage of his career and he managed to get a job where he could earn real money. In the new field of activity Ed, as the party of the first part,, shoveled coal from railroad cars. In consideration of the two to two and one-half days of backstraining labor required to empty one car the party of the second part, a Rouseville coal dealer, transferred, made over, in fact paid to Ed, his heirs and assigns forever all that part of a dollar represented by three 25-cent pieces. Mr. Leroux's own testimony is that he was "tickled to get the work."

Still He Wasn't Satisfied

But Ed was not one of your oversatisfied, static sort of boys. He had his dreams and after a while he got a still better job, this time in the very barrel house where aforetime he had passed happy but profitless hours. At the barrel house were received empty barrels from purchasers of the refinery's products. These barrels, however, had not always contained petroleum products. Sometimes it was molasses or some other viscous, sticky substance. The inside of the barrels had to be scraped out smooth and clean before they could be used again. Any wormholes were filled by driving in little wooden pegs. Thin glue was spread over the interior and the heads were painted. In his earlier and surreptitious visits to the barrel house Ed had dabbled with these various tasks, preferring probably the messier ones. Now he was set to work scraping out the inside of used barrels. For this he received 50 cents a day. He was on the high road to affluence.

These were vacation jobs. When Ed had exhausted the educational facilities of the village school he went into the Rouseville station of the Buffalo, New York & Philadelphia (now Pennsylvania) Railroad to learn telegraphy. He received no pay during the period of instruction, but at 19 he had acquired enough proficiency to enter the office of the master mechanic of the road in Oil City as an accountant and telegraph operator on a small salary. He soon was transferred to the office of the superintendent, where for 10 years he served as timekeeper for the trainmen besides doing other clerical work.

You've Seen This Kind of Store

Then he bought a half interest in John Farrell's sporting goods store and news stand in Oil City, which was operated thereafter under the firm name of Farrell & Leroux. The institution seems to have handled a rather bewildering variety of goods. Besides baseballs, bats, tennis rackets, catchers' masks, fish hooks, shin guards, magazines, newspapers and the like, it carried fireworks, phonographs, valentines, in fact almost anything the owners believed they had a chance of selling. The hours observed by Farrell & Leroux were from 7 a.m. to midnight. That is to say, the store was kept open as long as there seemed to be a prospective customer in the streets.

After three years in the mercantile business, in the course of which Mr. Leroux learned among other things that not every man who enters it is an embryonic A. G. Spalding or John Wanamaker, he sold his interest and went to Independence, Kans., having been offered employment by the Prairie Oil & Gas Co. On February 1, 1905, soon after his arrival in Independence, he was sent to the Argo pump station at Neodosha, Kans., as telegraph operator. A year later he was transferred to the company's office in Independence as an accountant under the direction of E. T. Patterson. He remained there until December 1, 1909, when the Oklahoma Pipe Line Co. was organized and he was made head of the new company's accounting department in Muskogee, Okla. Upon the death of J. L. Havice in 1913 Mr. Leroux succeeded him as secretary and treasurer. Five years later he was promoted to vice president and general manager, which office he held until 1914. In that year he was made president.

Then and Now

When Mr. Leroux joined the Oklahoma Pipe Line Co. upon its organization in 1909 it had a single 8-inch line 125 miles long extending from the Glenpool station in Oklahoma to De Queen, Ark. It had three pump stations, which handled 20,000 bbls. of oil daily. The company today has 2,175 miles of pipe line, with 52 pump stations handling 105,000 bbls. of oil a day. In point of amount of crude handled the company is rated as the third largest pipe line concern in Oklahoma. The company was the first to get a pipe line completed into the Seminole Field and at the peak of production it transported 92,000 bbls. of crude from that area in a day.

Among changes that have taken place in the oil business one that Mr. Leroux regards as especially noteworthy is that in the relations between employer and employe. Perhaps most of the change has been in the attitude of the executive toward the workman. The human element has entered into the situation to an unforeseen degree. Twenty years ago, when he was getting $75 a month, Mr. Leroux used to walk 2½ miles to and from work each day, and like most of his fellows, he put in 12 hours each day. If an employe was sick or was incapacitated by some accident, he was out of luck. He got some sympathy, perhaps, but save in exceptional instances his name was off the payroll until he was back on the job again. Relatively little thought was given to safety measures or safety appliances. Efforts in the direction of friendly understanding between the worker and the man who paid him had not made much headway.

Times Have Changed, and How

"In point of financial returns it probably is safe to say that pipe line employes, in the field and in the office, have received a larger proportionate share of the increased prosperity than officers and stockholders," said Mr. Leroux in commenting upon this phase of oil industry evolution. "In other words, the ratio of the employes' present pay to his former pay is greater than the ratio of present official salaries to former official salaries. It is greater than the ratio of the stockholder's present return from his investment to his former return. Post-war conditions have affected the incomes of us all of course, but I am speaking of ratios. Wholly aside from the matter of wages and salaries the workman today enjoys advantages that his predecessor of two decades ago did not dream of having. He does not walk long distances to his work unless he does so from choice for the exercise. He can afford an automobile and he usually has one. If he is sick or injured, he gets 'sick time.' His safety and his health are guarded. Sanitary, social, educational and moral conditions have become matters of instant concern in the board of directors' room. Safety devices are adopted as soon as their value is demonstrated. First-aid teams are organized for prompt service in emergencies. First-aid stations are installed wherever the number of employes and the hazards of their work justify them. A company doctor often is employed.

Thrift Encouraged

"The workman is advised to save and oftentimes as an incentive in this direc-

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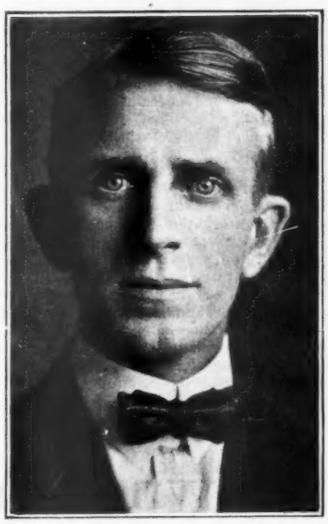
OIL TEAMSTER ONLY A MEMORY NOW

In the district where the first successful oil pipe line—the one from Pithole, Pa., to Miller farm on the Allegheny River—was laid 64 years ago Edward H. Leroux, now president of the Oklahoma Pipe Line Co., was born and passed his boyhood. This primitive pipe line, which marked the beginning of revolutionary changes in the method of transporting oil, was 6 miles long, of 2-inch pipe. Crude pumps forced the oil through it.



Edward H. Leroux

There were scoffers. Some said the projectors were crazy. But the line worked. It worked so well that oil field teamsters, who saw their eminently gainful occupation menaced, made sundry bellicose demonstrations. They had torn up one earlier and only partly successful line and they threatened to repeat the performance on the Pithole line.

There were some 6,000 of these teamsters in the oil country of that day. Gen. M. H. Avery, who had been a cavalry leader in the Civil War, organized a regular army train at Pithole—unending processions of horse-drawn wagons. Each wagon carried 5 to 7 bbls. of oil. The teamster regulated his charge according to depth of mud, length of haul and wear on temper and equipment. He made $10 to $30 a day.

The Oil Creek teamster, picturesque in his costume, thorough in his profanity and enthusiastic in his payday revelry, has become a tradition. So have the flatboats and the "pond freshets" to which early Pennsylvania operators resorted to move their product. In their place a mighty industry has grown up—an industry with millions of dollars invested in it, affording a field for the highest engineering and executive skill. In this great business of transporting oil by pipe lines Edward H. Leroux is a leading figure.

No Legislation Likely in Texas Now

Too Near Adjournment to Give Much Chance for Enactment of Bill Under Consideration. Amendments Offered

By James H. Dameron

FORT WORTH, Tex., Feb. 18.—After many heated open hearings that resulted in the elimination of sections broadening the powers of the Texas Railroad Commission in matters of conservation and proration of oil and gas production, it now appears that the amended bill has little chance of passing the present session of the forty-first Texas Legislature.

House bill No. 388, as written by the Railroad Commission, drew a storm of protest from both independent operators and major operators when it gave the commission power upon its own motion or the motion of a majority of operators to enforce proration in any flush field of the State.

This clause in the bill was the most violently objected to, and during the hearing minor objections to other sections were heard and acted upon. In the end these sections were deleted. The amended bill has been reported out favorably by the House committee. It broadens the police powers of the commission as well as giving the commission additional funds, but it appears the bill will not be brought up in the House before February 25, which would give it little chance to pass both the House and Senate before the ending of the regular session around March 8.

Not to Endanger Proration

Failure of the bill to pass this term of the legislature is not expected to have any bearing on the future security of proration in West Texas. The commission is advised by the attorney-general's department it has power to enforce proration in any field in Texas when evidence points to physical waste, and has built its proration plans around that legal opinion.

Two bills coming up in the House on Tuesday of this week are certain to occasion battles on the floor of both House and Senate. The bills are similar and provide the governor shall appoint a commission of three members who will have under their supervision, oil and gas pipe lines, telephone and telegraph companies, and all companies generating or distributing electricity, gas, power, steam, heat and light. Common carrier, water companies and municipal-owned utilities have been excepted.

This measure is due to cause a fight because it contains in several places the expression, "the commission may on its own motion"—the same phrase that caused such a storm over the Railroad Commission's bill.

More than 1,300 bills were introduced during this session of the legislature, and of the four major measures that have been enacted into laws, two affected the oil industry. One had to do with the leasing of university lands and the other with the validating of river-bed titles.

A literal raft of legislation is to be crowded into the three remaining weeks, and the proponents of the amended Railroad Commission bill do not hold much hope for its passage this term.

The following is the amended Railroad Commission bill:

Text of Amendments

Amend H.B. No. 388 by striking out all after the words, "A Bill to Be Entitled," down to the enacting clause, and insert in lieu thereof the following:

An act to amend Articles 6014, 6030 and 6036 so as to remove conflicts from the conservation statutes, restore the penalties and more adequately provide for the conservation of oil and gas in the State of Texas; authorizing the Railroad Commission of Texas to stop and prevent the waste of such oil and gas and to promote the conservation thereof and to make and enforce rules, regulations and orders for such purposes; providing for the appointment of a chief supervisor, a chief deputy supervisor and deputy supervisors, and fixing the qualifications and compensations of each and authorizing employment of all other necessary assistants; providing for the enforcement of the provisions hereof and of Title 102 of the Revised Civil Statutes of Texas, of 1925, dealing with the conservation of oil and gas and the prevention of the waste thereof, and of the rules, regulations and orders of said commission made thereunder, and fixing a penalty for the violation thereof; defining terms; providing for notice, hearings and appeal; repealing all laws and parts of laws in conflict therewith; making this law cumulative of all laws of this State on the conservation of oil and gas; providing that the holding of any provision hereof void or unconstitutional shall not nullify the other parts; providing for the survival and saving of liability incurred prior to the repealing of any part of the Revised Civil Statutes of Texas hereby, and declaring an emergency.

Section 2. That Article 6014 be amended as follows:

Article 6014. Neither natural gas nor crude petroleum shall be produced, transported, stored or used in such manner or under such conditions as to constitute waste. Provided, however, this shall not be construed to mean economic waste. The term "waste," in addition to its ordinary meaning, shall include permitting (a) escape into the open air of natural gas except as may be necessary in the drilling or operation of a well; (b) drowning with water of any stratum capable of producing oil or gas or both oil and gas in paying quantities; (c) underground waste; (d) any natural gas well to wastefully burn; (e) the wasteful utilization of natural gas; (f) the creation of unnecessary fire hazards.

Section 3. That Article 6030 be amended as follows:

Article 6030. The commission snall employ a chief supervisor of its Oil and Gas division to aid the commission in the enforcement of this act and all oil or gas conservation laws of Texas. He snall also perform the duties placed upon the pipe line expert as set out in the pipe line statutes of this State. The commismission may also appoint a chief deputy supervisor and such other deputy supervisors as necessary. The salary of the chief supervisor shall be $6,000 per annum, that of the chief deputy supervisor shall be $5,000 per annum, and that of the deputy supervisors shall be $3,600 each per annum. No one shall be appointed as chief supervisor who has not had at least five year's experience in some line of the oil or gas business, or in some other business or profession calculated to fit him for the performance of his duties. No one shall hereafter be appointed as chief deputy supervisor who has not had at least three years' experience in oil and gas field work, and no one shall hereafter be appointed deputy supervisor who has not at least two years experience in oil and gas field work, a substantial portion of which shall be in the drilling or production department.

Penalty Prescribed

Section 4. That Article 6036 be amended as follows:

Article 6036. In addition to any penalty that may be imposed by the commission for contempt for the violation of its orders, any person, firm, corporation, joint stock association, or any officer, agent or employe thereof, violating any of the provisions of this Act or of Title 102 of the Revised Civil Statutes, of 1925, or of any of the rules, regulations or orders of said commission made in pursuance thereof, shall be subject to a penalty of not more than $1,000 for each

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Sunday Shutdown Plan Inaugurated

Barnsdall and Prairie Companies Put It Into Effect At Seminole and Burbank. Results Pronounced Satisfactory

A Sunday shutdown movement in the Seminole area in Oklahoma was inaugurated this week, the Barnsdall Oil Corp., Prairie Oil & Gas Co. and T. B. Slick interests taking part in the movement, which it is hoped will become general throughout the Mid-Continent during the period of overproduction of oil. The first day's results in Seminole were satisfactory in lowering the average production of the field, and it is expected that next Sunday will see others joining in the movement. The Tidal Oil Co. announced on Monday that it will shut down next Sunday. Officials of other companies operating in the Seminole area have expressed themselves favorably. Wirt Franklin of Ardmore, a prominent individual operator, approves the suggestion of a Sunday shutdown in all Oklahoma fields, which is also advocated by the Prairie Oil & Gas Co. and the Barnsdall organization. The Prairie inaugurated a general Sunday shutdown by ordering that no work be done on its leases in the Burbank Field on Sundays until further notice.

The news of the Barnsdall Oil Corp.'s decision was made known in Tulsa Saturday morning, while that of the Prairie Oil & Gas Co. became known a few hours later upon the return of John Wolfe, producing superintendent, from a conference with executives at the headquarters of the company in Independence, Kans.

The Prairie Oil & Gas Co.'s shutdown order to Mr. Wolfe, signed by Dana H. Kelsey, vice president and general manager, was formally made as follows: "During the period of the present Seminole curtailment we wish you to shut down all possible operations on each Sunday, using this method as far as possible to cut our production to the amounts requested by the umpire. We appreciate that there will of necessity be some work that must be done on Sunday which will require some of your men to be on duty, but we desire that an earnest effort be made to shut down all plants and operations as far as practicable, thereby producing as little oil as possible on Sundays and giving such regular men as can be relieved the day to spend with their families. Please temporarily conduct a similar experiment on our Burbank properties by shutting down on Sundays. You should see that a careful record is kept of the results on each of our properties both in the Seminole and Burbank Fields, and advise us fully in due time, with your recommendations."

Affects Many Seminole Leases

The Prairie Oil & Gas Co.'s order affected 10 producing leases in the Little River Pool, 3 in the Maud Pool, 5 in the Bowlegs Pool, 5 in the Earlsboro Pool, 4 in the Seminole City Pool, and 3 in Searight, a total of 30 properties. The Barnsdall Oil Corp. has 3 producing leases in Little River, 2 in Maud, 2 in Bowlegs, 17 in Earlsboro, and 2 in the Seminole City Pool, a total of 26 properties, all affected by the order to quit producing oil on Sunday. T. B. Slick operates four, leases in the Seminole City Pool, five in Little River, one in Maud, and two in Earlsboro.

The three operators taking part in the first day's Sunday shutdown movement in Seminole all bear distinguishing marks. The Barnsdall Corp. is headed by Edwin B. Reeser, president of the American Petroleum Institute and a leader in the movement to conserve petroleum. The Prairie Oil & Gas Co. is the largest purchaser of crude oil in the Oklahoma and Kansas Fields. Thomas B. Slick is the largest individual oil producer in the world. With such leaders as these, the movement is bound to spread.

The matter of shutting down on Sundays, not only in Seminole, but everywhere that oil is produced seven days a week, has been discussed for some time. The Oil and Gas Journal said editorially on February 7:

"If a proposal to reduce production by shutting down one day a week was taken up and generally approved, the weight of opinion in the industry could enforce it.

"The adoption of that simple expedient, which has been demonstrated successfully by labor unions and by other industries as a remedy for overproduction, would reduce the total overproduction to the vanishing point in a very short time and result in a readjustment of crude values that would change the whole situation.

"Why, it has been asked, should the oil producing industry rush seven days a week to pile up overproduction when six days would take care of all possible demands?

"The resulting increase in value of production would more than compensate for the superficial loss that might be feared."

Hopes for General Movement

Dana H. Kelsey, vice president and general manager of the Prairie Oil & Gas Co. in a long distance conversation with The Oil and Gas Journal said he hoped to see the Sunday shut-down movement made general and that the Prairie Oil & Gas Co. in extending the shut-down order to the Burbank Field, had in mind the commencement of a six-day week program throughout the industry.

The idea of a six-day week in the fields is not new. It was tried successfully in some of the eastern fields years ago. It did not damage the properties to shut the wells down one day a week and the object sought was attained to the satisfaction of the companies engaged in the movement.

The Prairie Oil & Gas Co. has a few wells in the older part of the Seminole Field that were producing a large proportion of water and the order was given to shut these wells in by degrees. They were shut down eight hours on Sunday and when operations were resumed there was no trouble in getting them back on production. Next Sunday they will be shut down for a longer period and it is

(Continued on Page 147)

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GOING AHEAD

After a brief period of wobbling the oil industry has renewed and strengthened its determination to go ahead with self-regulation.

There was nothing else to do in the light of what co-operation accomplished in the past two years and the demonstration that if it were dropped the situation would keep getting worse, either through further price reductions or government regulation.

The leadership that inspired the get-together movement in 1926 is still functioning and being carried forward by the active support of the mass of the industry.

The meeting of the directors of the American Petroleum Institute at St. Louis was proof of that. It was the most energetically constructive meeting the Institute has ever held.

It was held at the critical moment when there was danger of slipping back into the old do-nothing-and-wait-till-it-blows-over attitude. A few weeks' delay might have seen the destruction of all that has been done to bring about better understanding in the industry.

Oil men were splitting into bitter divisions of opinion about secondary matters, arguing about details while the house was afire.

The Institute meeting offered a rallying point and fortunately leadership was there to direct it.

Whether the legislatures of the oil producing states can be got to pass the legislation recommended at the St. Louis meeting is another story. The Federal Oil Conservation Board suggested the states be asked to enact such legislation in the interests of conservation. The Institute showed its good faith in endorsing that policy.

But what was of more immediate and practical importance was the pledge obtained at St. Louis from the executives of the companies represented that they would do their part in self-regulation whether the laws were passed or not.

These men, after getting together and threshing over the situation from every angle, came to a common understanding that they could and would work together to get the industry back on its feet.

There can be no doubt that if they mean it, and there is every indication they do, they can find and apply the needed remedy.

The situation in Oklahoma is a convincing illustration. Production was getting out of hand and threatening new peaks and new price cuts.

Oklahoma was producing too much oil and likely to produce a lot more. It was a simple matter to figure the excess above reasonable requirements. Setting a maximum production in accordance with that quota was easy once there was agreement it should be done.

The issue was put up squarely to each producer in the resolution adopted at St. Louis declaring that "waste cannot be prevented as long as one operator, through ignorance, or through selfish disregard for the correlative rights of his neighbors, or through desire to capture more oil than underlies his property, disregards the principle and continues to waste gas and oil and refuses to co-operate with his neighbors in accepting preventive measures."

That stands as the opinion of the industry which cannot persistently be defied.

Furthermore, two companies, the Prairie and the Barnsdall, decided to put into effect the suggestion advanced in The Oil and Gas Journal February 7, of shutting down one day a week.

There need be no difficulty about checking overproduction if producers determine to go at it.

Proration in Oklahoma, in effect but two days last week, reduced the weekly average 20,000 barrels a day. This, too, with the opening of the Mission wells which otherwise would have forced production higher.

In Texas the legislature is reported unlikely to have time to act on the legislation offered at Austin over which much controversy has arisen. But the discussion has emphasized the necessity for continuing the conservation policy approved by the State Railroad Commission and strengthened its support.

In California, different circumstances and conditions are being encountered. Town-lot areas, proximity to refineries and other outlets and nearness to ocean transport, increase the difficulties. Fortunately the state administration is fully alive to the exigencies of the case and whatever legal support may be deemed necessary for the conservation of gas is expected to be obtained.

Conservation of gas will, of course, mean a corresponding conservation of oil production as a necessary consequence. The proposed legislation, if enacted, will be watched with interest in other producing states and be regarded as an example or a warning whichever way it is considered.

The big thing is that in each of the three leading oil-producing states where overproduction is a factor something definite is now being done towards regulating it.

This overproduction of crude is the biggest problem before the industry today and likely to be until it is solved. It is not local to any state or country. Its effects are felt the world over wherever oil is sold or consumed.

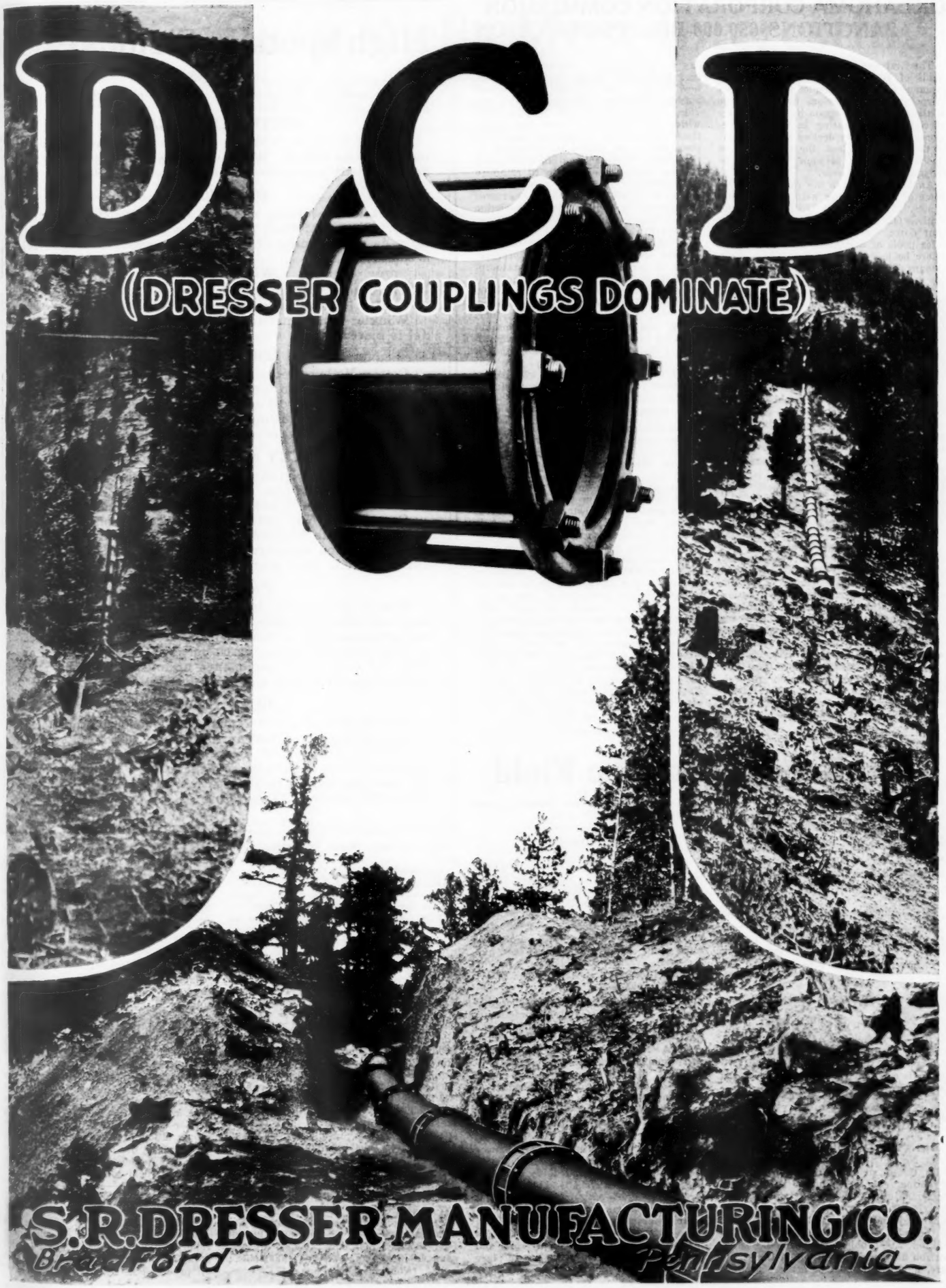
The Institute at its St. Louis meeting took up this question of world curtailment with equal energy, with the decision to appoint four regional committees to make a survey of supply and demand in the districts of California, the interior, Gulf Coast, and Mexico and northern South America, to report to the general committee within 30 days.

The oil business, as a world industry, is wasting a lot of energy and expense in unnecessary transportation and competition that cuts into the returns on petroleum, already far below its intrinsic value.

This condition reacts against the producer as well as the refiner and distributor. Its correction would be a long step towards rehabilitation of the business and stabilization of the industry. But an essential preliminary must be the checking of overproduction here at home.

Another constructive action taken at St. Louis was the resolution for the development of wider use of road oil, as suggested by Mr. James of the Bureau of Public Roads and urged upon the attention of the industry in The Oil and Gas Journal of January 17.

Definite pledges for curtailment of overproduction, actual beginning on world stabilization, and a practical program for wider use of petroleum products was the best day's work the American Petroleum Institute has accomplished in the nine years of its existence. Better still, it holds the promise of still more effective action to come.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OKLAHOMA CORPORATION COMMISSION SANCTIONS 650,000-BBL. PRODUCTION

The first week of proration in the flush fields of Oklahoma was marked by the issuance of a new order of the Oklahoma Corporation Commission, the acceptance of the proration program by the majority of companies operating in the flush regions, a consequent decline in the output of the field, and last, the drilling in of the wells in the Mission Pool of the Greater Seminole area.

An innovation was the voluntary shutdown of all producing wells by two companies, the Barnsdall Oil Co. and the Prairie Oil & Gas Co. T. B. Slick also shut down the most of his wells in the older pools of Seminole, but at St. Louis where he has some wells making a large amount of water, he only curtailed to the required figure.

The status of the proration policy at this time is that the older pools of Seminole are reduced 18 per cent of their production as of February 14, the St. Louis Pool is reduced 20 per cent of its production as of the same date, while the Maud Pool in Township 8-5 is reduced 24 per cent of its production at that time.

The drilling in of 56 wells at Mission added 33,232 bbls. to the yield on Tuesday morning, February 19.

The pools' production on Monday morning and Tuesday morning of this week follow:

Pool—	Monday	Tuesday
Little River	75,205	87,599
Maud	43,340	41,074
Mission	29,522	33,232
Bowlegs	31,396	33,464
Earlsboro	51,653	56,833
Seminole	29,521	34,101
Searight	9,477	9,822
Total barrels	270,114	296,125

Mission Not Prorated

It will be observed that the Sunday shutdown (shown by Monday morning's production) caused a slump of 29,000 bbls., when it is considered that Mission added 3,000 bbls. on Tuesday morning's gauges. The rate of production as shown by Tuesday morning's output means that without Mission which is not yet being prorated, the area produced 263,125 bbls.

A public hearing held before the Oklahoma Corporation Commission on Friday, February 15, resulted in that body taking the resolution which was adopted by the meeting of producers held February 5, and placing it in an official order. Under this order the 650,000 bbls. now becomes the official figure which may be produced, and the order also provided for drilling in the Mission wells which had been shut down for a long time. All wells in the Mission area were permitted to be drilled in, according to the order, and their potentials established. It then directs the umpire to establish such proration in Mission as may be required to reduce the output of that area sufficiently to keep the total production of the State within the 650,000-bbl. per day mark.

At this time it is believed that the Mission area will eventually be prorated about 25 per cent. The present status of the field indicates that many disappointments will be experienced, for out of 60 wells drilled in, the average per well has been slightly over 500 bbls. per day. This figure will not result in any market breaking pool, and what is more significant is that the best well to be completed only flowed 1,000 bbls. daily. The majority of the Mission wells will be air lift wells judging by the present outlook in that region.

Sunday Shutdown Spreading

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(Continued on Page 146)

High Spots in Field News

KANSAS

New well in Wright Pool extends production quarter mile.

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Proration becoming effective in Oklahoma, production drops. Output of flush pools shows decline of 20,000 bbls. daily despite opening of Mission area where average yield is small.

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Third pool may be opened in Pecos County.

Settles Pool extended westward.

Winkler County potential decreases while Howard potential is increased.

NORTH LOUISIANA-ARKANSAS

Cotton Valley deep gas sand extended half mile east.

Gulf Refining Co. apparently picks up Champagnolle shallow sand southwest corner of old El Dorado East Field. Well came in with estimated 45,000,000 feet of gas and 45 bbls. of fluid, 30 bbls, of which was oil.

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Unit operation agreement reached in Baxter Basin areas for conservation of gas.

Water showing in Lea County, New Mexico, wells.

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Second wildcat on old Hackberry Dome, Cameron Parish, Louisiana, completed with initial flow of 800 bbls.

Another geophysical dome was opened by The Texas Company's well at Port Barre, St. Landry Parish, Louisiana, the first production in that parish. It flowed initially at rate of 500 bbls. of 22 gravity oil.

Late News from the Field

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LOS ANGELES, Calif., Feb. 19.—George Getty's No. 19 O'Connell, which recently picked up a new deep zone below the Buckbee horizon at Santa Fe Springs, tested wet when swabbed in from 6,610 feet. This new well showed an initial production of 3,700 bbls. daily, the cut averaging in excess of 60 per cent exactly. Two hundred and fifty feet of oil sand was opened up and the outlook is bright for large production when the water has been eliminated.

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OKLAHOMA

The most important well to be recorded in the late news was the Darby Petroleum Co.'s No. 1 Bodkin, SE cor. NW, Section 16-7-4, west of the St. Louis Pool in Pottawatomie County. This well touched the Hunton lime at 3,697 feet, and the hole filled up at that point. The total depth of the well is 3,703 feet, and the well average 45 bbls. an hour by natural flow, until it was pinched in for lack of tankage.

It will probably be drilled deeper this week. It extends the limits of production on the Hunton arch for 1½ miles to the west, and three-quarters of a mile to the southwest. The new well is running slightly higher than the Hunton wells to the east, and there is the added possibility of good Wilcox sand production being obtained in this operation. Under a limited drilling agreement, only three offsets will be drilled.

The new wells in the Mission Pool were rather disappointing in the matter of initial production. There were almost 60 wells completed, and their combined production added 33,464 bbls. to the Greater Seminole output for the 24 hours ending at 7 a. m., Tuesday.

An interesting feature of the Mission wells is that they were put on the gas lift very rapidly, the compressors and other equipment having been put in place some time ago. The average wells have wells and their initial performance follows:

Independent Oil & Gas Co.'s No. 1 Lawson, Section 1-8-5, sand 4,270-76 feet, swabbed 1,030 bbls. in 10 hours. No. 4 Lawson, Section 1-8-5, sand 4,-474-78 feet, swabbed 1,565 bbls. in 24 hours. Gypsy Oil Co.'s No. 2 S. Micco, Section 8-8-6, sand 4,453-56 feet, 2,000 feet of water in hole; Twin State Oil Co.'s No. 2 Hays, Section 8-8-6, sand 4,-205-13 feet, hole full oil; Gypsy Oil Co.'s No. 2 Dosar, Section 7-8-6, sand 4,449-50 feet, swabbed 1,200 bbls.; No. 4 Dosar, Section 7-8-6, sand 4,490-97 feet, swabbed and flowed 1,490 bbls.; No. 1 Harding, Section 7-8-6, sand 4,-655-59 feet, swabbed 420 bbls.; No. 2 Harding, Section 7-8-6, sand 4,438-42 feet, swabbed 369 bbls.; No. 3 Harding, Section 7-8-6, sand 4,664-69 feet, swabbed 515 bbls.; No. 4 Harding, sand (Simpson) 4,323-74 feet, hole full oil; No. 1 Hays, Section 7-8-6, sand 4,051-54 feet, swabbed 700 bbls.; No. 3 Hays, sand, 4,740-45 feet, swabbed 390 bbls.

Marland Production Co.'s No. 2 Maines, Section 7-8-6, sand 4,480-93 feet, swabbed 500 bbls. in seven hours; Minnehoma Oil Co.'s No. 1 Neal, Section 7-8-6, sand 4,-507-10 feet, made 730 bbls. in 15 hours on air lift; Shell Petroleum Corp.'s No. 3 Maines, Section 7-8-6, sand 4,284-89 feet, swabbed 300 bbls.; No. 2 Maines, sand 4,376-82 feet, swabbed 1,000 bbls.;

(Continued on Page 147)

PETROLEUM SECTION A.I.M.E. IN SESSION

NEW YORK, Feb. 18.—Refinery engineers, geologists and production men from all over the country are gathering here today for the annual meeting of the Petroleum Section, American Institute of Mining and Metallurgical Engineers. A comprehensive program dealing with production and refining problems will come up for discussion during the two-day session, the meeting being under the chairmanship of A. W. Ambrose, production manager for the Empire Oil & Refining Co., with headquarters at Bartlesville, Okla.

Today's session of the institute was given over to subjects of minor interest to the petroleum trade. The feature was a lecture by John H. Hall of the Taylor-Wharton Steel Co. on a microscopic study of manganese steel. Group meetings by the iron and steel, lead and zinc, and nonmetallic minerals divisions were also held today.

AGAINST CRUDE OIL TAX

TOPEKA, Kans., Feb. 15.—The house assessment and taxation committee today reported adversely the White bill to levy a tax of 3 cents on each barrel of crude oil produced in Kansas.

Gray County Wells Most Interesting

Cold Weather Curtails Routine Drilling and Wildcat Work in Panhandle and North Texas Area. Production Down

By James H. Dameron
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Feb. 18.—With both routine drilling and wildcat work curtailed because of delays traceable to cold weather all three districts in North Texas finished the quietest week this year in field developments. Production likewise was affected, and the Panhandle, bearing the brunt of the cold snap, showed a 4,100-bbl. decrease in daily average.

One of the most interesting wells in the far northern territory is Gulf Production Co.'s No. 6 Bowers-A in the Bowers Pool in Gray County. This well is offset by 200 and 300-bbl. pumpers, and it has never had more than 300 feet of oil in the hole. With only such a small column of oil the well has been making the remarkable production of between 1,200 and 1,400 bbls. daily, and with a swab it made around 1,600 bbls. daily. On its last 24-hour gauge it made 1,296 bbls.

A 65-bbl. pumper was the best completion in the district and that was a well in Gray County. Another good gas well was completed in the Shamrock Field when Lone Star Gas Co.'s No. 1 Shelton was finished as a 56,000,000-foot gas well. The completion report was rounded out with a 4,043-foot dry hole in Cottle County.

Wichita Falls District

Towards the end of the week weather conditions improved and the Wichita Falls district operations had resumed virtually 10 per cent. The best completions from that district were in Wilbarger County when Wichita and Archer Counties both showed a sharp decline in completions.

Locations, however, for the week were the greatest in number this week of any this year. Most of these were made in Archer and Young Counties with Wilbarger County and Wichita County getting a good share while the remainder were scattered throughout the district.

Jack County showed another increase in field operations and will likely increase its pace steadily but slowly for the next several weeks. Osage Oil Co.'s test in the Bryson area is still shut down. If completed as a producer it will be a southeast extension to the Bryson area. It has oil in the hole from a total depth of 2,983 feet.

Ranger at Ebb

The Ranger district's completion report fell to its lowest ebb of the year and probably the most discouraging. Twelve of its 20 completions were dry holes. The banner well was Ohio-Texas Oil Co.'s No. 1 Matthews in Shackelford County, which made 300 bbls. natural from sand at 1,136-53 feet.

In daily average production the area as a whole registered a decline of 5,733 bbls. Panhandle contributed the greatest loss when its daily average fell to 52,850 bbls., a loss of 4,095 bbls. Most of this was in Hutchinson County. The Wichita Falls district loss was scattered over all the counties and totaled 741 bbls., while Ranger was off 927 bbls.

PANHANDLE COMPLETIONS

Week Ended February 16

Cottle County

Skelly Oil Co.'s No. 1 Cannon was dry and abandoned at a total depth of 4,043 feet.

Gray County

Phillips Petroleum Corp.'s No. 4 Johns, 330 feet each way from NE cor. SE SW Section 87, Block 3, I.&G.N.R.R. Survey, was drilled to a total depth of 3,223 feet, found salt water at that depth, was plugged back to 3,221 feet and pumped 65 bbls. daily from 3,204-10 feet. Skelly Oil Co.'s No. 3 Saunders, 330 feet from north line and 990 feet from west line of SW cor. Section 4, Block 1, A.C.H.&B. Survey, was drilled to a total depth of 2,995 feet, plugged back to 2,820 feet and pumped 5 bbls. at 2,750-2,811 feet.

Hutchinson County

Amarillo Refining Co.'s No. 1 R. A. Jameson topped the pay at 3,145 feet, was drilled to a total depth of 3,230 feet, plugged back to 3,198 feet and made 15 bbls. Dean and others' No. 2 Johnson Brothers was drilled to a total depth of 3,030 feet, found the lime pay at 2,983-91 feet, was shot with 40 quarts at 2,-982-91 feet and made 5 bbls. oil and 40,000,000 feet of gas at 2,565-2,670 feet. Phillips Petroleum Corp.'s No. 1 Johnson Brothers was shot with 80 quarts at 2,845-86 feet and swabbed 55 bbls.

Wheeler County

Lone Star Gas Co.'s No. 1 Shelton, C of NE SE Section 22, Block 24, H. &G.N. Survey, made 56,000,000 feet of gas at 1,840-1,903 feet. Wish Kamper's No. 2 fee made 40,000,000 feet of gas at 1,480-1,505 feet.

ESTIMATED DAILY AVERAGE PRODUCTION
NORTH TEXAS

Week Ended February 16

Panhandle District—	
Carson County	5,590
Gray County	20,870
Hutchinson County	24,160
Moore County	1,500
Potter County	...
Wheeler County	730
Total this week	52,850
Total last week	56,915
Decrease	4,065
Wichita Falls District—	
Archer County	17,519
Baylor County	87
Clay County	440
Cooke County	2,545
Jack County	1,708
Montague County	7,133
Throckmorton County	703
Wilbarger County	26,923
Young County	7,370
Wichita County	28,361
Total this week	92,789
Total last week	93,530
Decrease	741
Ranger District—	
Brown County	8,923
Callahan County	3,716
Coleman County	3,573
Comanche County	1,193
Palo Pinto County	394
Ranger	5,624
Shackelford County	12,964
Stephens County	6,392
Total this week	42,879
Total last week	42,806
Decrease	927
Grand total this week	188,518
Grand total last week	194,251
Decrease	5,733

WICHITA COMPLETIONS

Archer County

Rathke Oil Co.'s No. 5 Wilson-A made 4 bbls. at 1,379-88 feet. The Texas Company's No. 1 Parkey was dry and abandoned at 1,851 feet. F. C. Grebin and others' No. 3 Hennig made 54 bbls. at 1,415-28 feet. Madden & Hunt's No. 16 Richardson made 55 bbls. at 1,282-89 feet.

Cooke County

W. E. Benson and Shell Petroleum Corp.'s No. 1 Ball was dry and abandoned at 1,578 feet. Kewanee Oil & Gas Co.'s No. 5 Timmis-A made 102 bbls. in broken shale found at 1,049-1,130 feet, 1,130-43 feet and 1,143-1,208 feet.

Jack County

Bryson Oil & Gas Co.'s No. 1 Daugherty was junked at 460 feet and skidded derrick 20 feet south.

Montague County

Harris & Simons' No. 5 Maddox made 26 bbls. at 836-54 feet. Pure Oil Co.'s No. 8 Maddox made 30 bbls. at 833-50 feet. The Texas Company's No. 7 Gist-B made 31 bbls. at 830-50 feet.

Wichita County

Carl B. Bailey's No. 29 Manger made 25 bbls. at 1,761-67 feet. W. H. Hammon's No. 12 McCarty made 64 bbls. at 1,462-91 feet. Humble Oil & Refining Co.'s No. 12 Taylor made 125 bbls. at 1,466-88 feet. T. F. Hunter's No. 14 Waggoner Brothers made 25 bbls. at 1,-731-46 feet.

Wilbarger County

Beasley and others' No. 1 Waggoner-B was dry and abandoned at 2,205 feet. Fain McGaha Oil Corp.'s No. 30 Waggoner-S made 125 bbls. at 2,398-2,412 feet. Its No. 32 Waggoner-S made 225 bbls. at 2,311-34 feet and 2,417-26 feet, 2,431-47 feet and was drilled to a total depth of 2,449 feet. Lesh & McCall's No. 1 Waggoner was dry and abandoned at 2,461 feet. Phillips Petroleum Corp.'s No. 2 Ann Waggoner made 12 bbls. at 2,320-25 feet and was drilled to a total depth of 2,330 feet. Its No. 1 Jennings Waggoner was dry and abandoned at 2,505 feet. Its No. 1 Waggoner-N made 9 bbls. at 2,346-61 feet. Its No. 3 Waggoner-BBB made 32 bbls. at 1,895-1,911 feet. Shaw Oil Co.'s No. 3 Waggoner-E made 200 bbls. at 2,412-40 feet and was shut down at 2,444 feet. Staley Wynne & Co.'s No. 4 Waggoner-F made 250 bbls. at 2,-411-16 feet. Wanderer Oil Co.'s No. 1 Waggoner was dry and abandoned at 1,-940 feet.

Young County

Bradstreet Co.'s No. 2 Snider made 9 bbls. at 580-86 feet. Fain McGaha Oil Corp.'s No. 1 Campbell-I was dry and abandoned at 950 feet. Pennell & Walton's No. 1 Birdwell & Hazard was dry and abandoned at 700 feet. Prairie Oil & Gas Co.'s No. 6 Kunkel was dry and abandoned at 1,203 feet. Weekly Oil Corp.'s No. 2 Jordon location was temporarily abandoned.

RANGER COMPLETIONS

Brown County

Young Brothers, Alexander & Woodley Petroleum Co.'s No. 21 Hickman was shot at 1,239-55 feet with 20 quarts and made 50 bbls. Amerada Petroleum Corp.'s No. 1 Smith was dry and abandoned at 652 feet. Brock & Switzer's No. 1 Dunn was dry and abandoned at 490 feet. Green and others' No. 1 Rierdan was dry and abandoned at 1,257 feet. H. Gutzman's No. 10 Stanley made 10 bbls. at 414-31 feet. Lloyd Oil Corp.'s No. 16 Collier made 6 bbls. after having been shot with 7 quarts at 417-33 feet. Paramount Oil Royalties' No. 3 Mayes was dry and abandoned at 558 feet.

Callahan County

Bradstreet & Holden's No. 11 Miller was shot with 40 quarts at 1,597-1,642 feet and made 60 bbls. Reiter Foster Oil Corp.'s No. 8-A Hatchett made 15 bbls. at 345-54 feet.

Coleman County

Roth & Faurot's No. 4 Sealey & Smith was dry and abandoned at 3,642 feet.

Eastland County

Lewis and others' No. 2 Lyerla was shot with 20 quarts at 1,283-99 feet and made 12 bbls. Y. L. Jones' No. 1 Gattis was dry and abandoned at 552 feet. Jordon and others' No. 1 Shamburger was dry and abandoned at 1,952 feet. G. P. Mitcham's No. 1 Waddington was dry and abandoned at 1,645 feet. Southern Oil & Production Co.'s No. 1 Thorp made 3,500,000 feet of gas at 1,705-14 feet, 270 pounds rock pressure.

Mills County

Whiteside's No. 1 Traylor was dry and abandoned at 1,865 feet.

Palo Pinto County

American Legion's No. 1 Mosley was dry and abandoned at 2,473 feet.

Shackelford County

Cranfill & Reynolds' No. 2 Diller was dry and abandoned at 915 feet. Ohio-Texas Oil Co.'s No. 1 Matthews made 300 bbls. at 1,136-53 feet.

Stephens County

The Texas Company's No. 15 Gholson was dry and abandoned at 4,309 feet.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week ended February 9

CARSON COUNTY

Company, well, farm, name, section and block—	Remarks—
Denson et al's No. 1 W. E. Cobb, 930 ft. from N line, 280 ft. from E line, W½ NW, Sec. 184, Blk. 2, I.&G.N. Sur.	Drlg. 2,175 ft.
Delmar Oil Co.'s No. 3 Noel, 330 ft. from E line and 990 ft. from N line W½ SE, Sec. 198, Blk. 3	Drlg. 1,860 ft.
Gulf Prod. Co.'s No. 1-E Cooper, 330 ft. S and W of NE cor. SW, Sec. 5, Blk. 9, I.&G.N. Sur.	Location.
Holmes et al's No. 1 Quinn, 330 ft. from S and 330 ft. from E line SW, Sec. 7, Blk. 9, I.&G.N. Sur.	Drlg. 2,510 ft.
Marland Prod. Co.'s No. 1 Burnett-L, 440 ft. S and 1,320 ft. W of NE cor. Sec. 79, Blk. 4, I.&G.N.R.R. Sur.	Fishing 340 ft.
McElroy Oil Co.'s No. 1 Lewis, 330 ft. S and E of NW cor. of SW of NE Sec. 115, Blk. 4, I.&G.N.R.R. Sur.	Rig.
Morris et al's No. 1 Barnard, NW cor. SW SE, Sec. 44	S. D. 1,900 ft.
Reynolds et al's No. 1 E. Cooper, 330 ft. from S line and 330 ft. from E line NW, Sec. 5, Blk. 9, I.&G. N.R.R. Sur.	Drlg. 2,725 ft.
Spartan Oil Co.'s No. 1 S. Bednorz, NW cor. E½ NW, Sec. 202, Blk. 3, I.&G.N. Sur.	Drlg. 2,587 ft.
Skelly Oil Co.'s No. 1 Hedrick, 660 ft. from N line and 660 ft. from W line Sec. 239, Blk. B-2, H.&G.N. R.R. Sur.	Location.
Skelly Oil Co.'s No. 11 Schaffer, 330 ft. from S line 990 ft. from the W line, Sec. 88, Blk. 4, I.&G.N. R.R. Sur.	Drlg. 1,850 ft.
Skelly Oil Co.'s No. 12 Schaffer, 330 ft. from S line and 1,650 ft. from the W line of Sec. 88, Blk. 4, I.&G.N.R.R. Sur.	Set 10-in. 1,107 ft.
Travis et al's No. 1 D. A. Harrell, C NE NE, Sec. 162, Blk. 7, I.&G.N. Sur.	Drlg. 2,930 ft.
Ware et al's No. 1 Ware, 990 ft. S and 400 ft. E NW cor. Sec. 18, Blk. 3, A.B.&M. Sur.	Drlg. 3,773 ft.

(Continued on Page 111)

ETHYL GASOLINE DISTRIBUTION

CHICAGO, Feb. 16.—The Johnson Oil & Refining Co. is planning to begin the distribution of Ethyl gasoline through its stations in Illinois, Wisconsin, Indiana and Michigan on March 15 instead of April 1 as announced. Quite a number of customers have signed contracts with the Johnson organization for the distribution of Ethyl product which will be refined under a contract with the Ethyl Gasoline Corp.

The Johnson Oil & Refining Co. has been distributing this gasoline through its stations outside of the Standard Oil Co. (Ind.) territory for some time. The Standard Co. plans to continue to distribute Ethyl gasoline as in the past but will not have the exclusive rights.

ILLUSTRATION INVERTED

In the advertisement of the Tulsa Boiler & Machinery Co. in The Oil and Gas Journal of January 10 an illustration of the Tulsa type mist extractor was inverted. The same advertisement appears on page 6 in this issue, showing the extractor in the correct position.

OKLAHOMA CORPORATION COMMISSION SANCTIONS 650,000-BBL. PRODUCTION

The first week of proration in the flush fields of Oklahoma was marked by the issuance of a new order of the Oklahoma Corporation Commission, the acceptance of the proration program by the majority of companies operating in the flush regions, a consequent decline in the output of the field, and last, the drilling in of the wells in the Mission Pool of the Greater Seminole area.

An innovation was the voluntary shutdown of all producing wells by two companies, the Barnsdall Oil Co. and the Prairie Oil & Gas Co. T. B. Slick also shut down the most of his wells in the older pools of Seminole, but at St. Louis where he has some wells making a large amount of water, he only curtailed to the required figure.

The status of the proration policy at this time is that the older pools of Seminole are reduced 18 per cent of their production as of February 14, the St. Louis Pool is reduced 20 per cent of its production as of the same date, while the Maud Pool in Township 8-5 is reduced 24 per cent of its production at that time.

The drilling in of 56 wells at Mission added 33,232 bbls. to the yield on Tuesday morning, February 19.

The pools' production on Monday morning and Tuesday morning of this week follow:

Pool—	Monday	Tuesday
Little River	75,205	87,599
Maud	43,340	41,974
Mission	29,522	33,232
Bowlegs	31,396	33,464
Earlsboro	51,653	56,833
Seminole	29,521	34,101
Searight	9,477	9,822
Total barrels	270,114	296,125

Mission Not Prorated

It will be observed that the Sunday shutdown (shown by Monday morning's production) caused a slump of 29,000 bbls., when it is considered that Mission added 3,000 bbls. on Tuesday morning's gauges. The rate of production as shown by Tuesday morning's output means that without Mission which is not yet being prorated, the area produced 263,125 bbls.

A public hearing held before the Oklahoma Corporation Commission on Friday, February 15, resulted in that body taking the resolution which was adopted by the meeting of producers held February 5, and placing it in an official order. Under this order the 650,000 bbls. now becomes the official figure which may be produced, and the order also provided for drilling in the Mission wells which had been shut down for a long time. All wells in the Mission area were permitted to be drilled in, according to the order, and their potentials established. It then directs the umpire to establish such proration in Mission as may be required to reduce the output of that area sufficiently to keep the total production of the State within the 650,000-bbl. per day mark.

At this time it is believed that the Mission area will eventually be prorated about 25 per cent. The present status of the field indicates that many disappointments will be experienced, for out of 60 wells drilled in, the average per well has been slightly over 500 bbls. per day. This figure will not result in any market breaking pool, and what is more significant is that the best well to be completed only flowed 1,000 bbls. daily. The majority of the Mission wells will be air lift wells judging by the present outlook in that region.

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(Continued on Page 146)

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Third pool may be opened in Pecos County.

Settles Pool extended westward.

Winkler County potential decreases while Howard potential is increased.

NORTH LOUISIANA-ARKANSAS

Cotton Valley deep gas sand extended half mile east.

Gulf Refining Co. apparently picks up Champagnolle shallow sand southwest corner of old El Dorado East Field. Well came in with estimated 45,000,000 feet of gas and 45 bbls. of fluid, 30 bbls. of which was oil.

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Water showing in Lea County, New Mexico, wells.

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Another geophysical dome was opened by The Texas Company's well at Port Barre, St. Landry Parish, Louisiana, the first production in that parish. It flowed initially at rate of 500 bbls. of 22 gravity oil.

Late News from the Field

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DENVER, Colo., Feb. 19.—Carter Oil Co.'s No. 1 State, Section 16-48-82, on Billy Creek structure, Johnson County, Wyoming, cut the Frontier at 3,212-40 feet, making 2,000,000 feet of gas and spraying 5 bbls. of oil. The oil was soon exhausted and the well shut down. This is the well reported by newspapers as making 2,000 bbls. It is in the same horizon as the big gas wells on the structure, half a mile east of nearest production, and results are not considered important.

OKLAHOMA

The most important well to be recorded in the late news was the Darby Petroleum Co.'s No. 1 Bodkin, SE cor. NW, Section 16-7-4, west of the St. Louis Pool in Pottawatomie County. This well touched the Hunton lime at 3,697 feet, and the hole filled up at that point. The total depth of the well is 3,703 feet, and the well average 45 bbls. an hour by natural flow, until it was pinched in for lack of tankage.

It will probably be drilled deeper this week. It extends the limits of production on the Hunton arch for 1½ miles to the west, and three-quarters of a mile to the southwest. The new well is running slightly higher than the Hunton wells to the east, and there is the added possibility of good Wilcox sand production being obtained in this operation. Under a limited drilling agreement, only three offsets will be drilled.

The new wells in the Mission Pool were rather disappointing in the matter of initial production. There were almost 60 wells completed, and their combined production added 33,464 bbls. to the Greater Seminole output for the 24 hours ending at 7 a. m., Tuesday.

An interesting feature of the Mission wells is that they were put on the gas lift very rapidly, the compressors and other equipment having been put in place some time ago. The average wells have wells and their initial performance follows:

Independent Oil & Gas Co.'s No. 1 Lawson, Section 1-8-5, sand 4,270-76 feet, swabbed 1,030 bbls. in 10 hours. No. 4 Lawson, Section 1-8-5, sand 4,-474-78 feet, swabbed 1,565 bbls. in 24 hours. Gypsy Oil Co.'s No. 2 S. Micco, Section 8-8-6, sand 4,453-56 feet, 2,000 feet of water in hole; Twin State Oil Co.'s No. 2 Hays, Section 8-8-6, sand 4,-205-13 feet, hole full oil; Gypsy Oil Co.'s No. 2 Dosar, Section 7-8-6, sand 4,449-50 feet, swabbed 1,200 bbls.; No. 4 Dosar, Section 7-8-6, sand 4,490-97 feet, swabbed and flowed 1,490 bbls.; No. 1 Harding, Section 7-8-6, sand 4,-655-59 feet, swabbed 420 bbls.; No. 2 Harding, Section 7-8-6, sand 4,438-42 feet, swabbed 369 bbls.; No. 3 Harding, Section 7-8-6, sand 4,664-69 feet, swabbed 515 bbls.; No. 4 Harding, sand (Simpson) 4,323-74 feet, hole full oil; No. 1 Hays, Section 7-8-6, sand 4,051-54 feet, swabbed 700 bbls.; No. 3 Hays, sand, 4,740-45 feet, swabbed 390 bbls.

Marland Production Co.'s No. 2 Maines, Section 7-8-6, sand 4,480-93 feet, swabbed 500 bbls. in seven hours; Minnehoma Oil Co.'s No. 1 Neal, Section 7-8-6, sand 4,-507-10 feet, made 730 bbls. in 15 hours on air lift; Shell Petroleum Corp.'s No. 3 Maines, Section 7-8-6, sand 4,284-89 feet, swabbed 300 bbls.; No. 2 Maines, sand 4,376-82 feet, swabbed 1,000 bbls.;

(Continued on Page 147)

PETROLEUM SECTION A.I.M.E. IN SESSION

NEW YORK, Feb. 18.—Refinery engineers, geologists and production men from all over the country are gathering here today for the annual meeting of the Petroleum Section, American Institute of Mining and Metallurgical Engineers. A comprehensive program dealing with production and refining problems will come up for discussion during the two-day session, the meeting being under the chairmanship of A. W. Ambrose, production manager for the Empire Oil & Refining Co., with headquarters at Bartlesville, Okla.

Today's session of the institute was given over to subjects of minor interest to the petroleum trade. The feature was a lecture by John H. Hall of the Taylor-Wharton Steel Co. on a microscopic study of manganese steel. Group meetings by the iron and steel, lead and zinc, and nonmetallic minerals divisions were also held today.

AGAINST CRUDE OIL TAX

TOPEKA, Kans., Feb. 15.—The house assessment and taxation committee today reported adversely the White bill to levy a tax of 3 cents on each barrel of crude oil produced in Kansas.

Gray County Wells Most Interesting

Cold Weather Curtails Routine Drilling and Wildcat Work in Panhandle and North Texas Area. Production Down

By James H. Dameron
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Feb. 18.—With both routine drilling and wildcat work curtailed because of delays traceable to cold weather all three districts in North Texas finished the quietest week this year in field developments. Production likewise was affected, and the Panhandle, bearing the brunt of the cold snap, showed a 4,100-bbl. decrease in daily average.

One of the most interesting wells in the far northern territory is Gulf Production Co.'s No. 6 Bowers-A in the Bowers Pool in Gray County. This well is offset by 200 and 300-bbl. pumpers, and it has never had more than 300 feet of oil in the hole. With only such a small column of oil the well has been making the remarkable production of between 1,200 and 1,400 bbls. daily, and with a swab it made around 1,600 bbls. daily. On its last 24-hour gauge it made 1,296 bbls.

A 65-bbl. pumper was the best completion in the district and that was a well in Gray County. Another good gas well was completed in the Shamrock Field when Lone Star Gas Co.'s No. 1 Shelton was finished as a 56,000,000-foot gas well. The completion report was rounded out with a 4,043-foot dry hole in Cottle County.

Wichita Falls District

Towards the end of the week weather conditions improved and the Wichita Falls district operations had resumed virtually 10 per cent. The best completions from that district were in Wilbarger County when Wichita and Archer Counties both showed a sharp decline in completions.

Locations, however, for the week were the greatest in number this week of any this year. Most of these were made in Archer and Young Counties with Wilbarger County and Wichita County getting a good share while the remainder were scattered throughout the district.

Jack County showed another increase in field operations and will likely increase its pace steadily but slowly for the next several weeks. Osage Oil Co.'s test in the Bryson area is still shut down. If completed as a producer it will be a southeast extension to the Bryson area. It has oil in the hole from a total depth of 2,983 feet.

Ranger at Ebb

The Ranger district's completion report fell to its lowest ebb of the year and probably the most discouraging. Twelve of its 20 completions were dry holes. The banner well was Ohio-Texas Oil Co.'s No. 1 Matthews in Shackelford County, which made 300 bbls. natural from sand at 1,136-53 feet.

In daily average production the area as a whole registered a decline of 5,733 bbls. Panhandle contributed the greatest loss when its daily average fell to 52,850 bbls., a loss of 4,095 bbls. Most of this was in Hutchinson County. The Wichita Falls district loss was scattered over all the counties and totaled 741 bbls., while Ranger was off 927 bbls.

PANHANDLE COMPLETIONS

Week Ended February 16

Cottle County

Skelly Oil Co.'s No. 1 Cannon was dry and abandoned at a total depth of 4,043 feet.

Gray County

Phillips Petroleum Corp.'s No. 4 Johns, 330 feet each way from NE cor. SE SW Section 87, Block 3, I.&G.N.R.R. Survey, was drilled to a total depth of 3,223 feet, found salt water at that depth, was plugged back to 3,221 feet and pumped 65 bbls. daily from 3,204-10 feet. Skelly Oil Co.'s No. 3 Saunders, 330 feet from north line and 990 feet from west line of SW cor. Section 4, Block 1, A.C.H.&B. Survey, was drilled to a total depth of 2,995 feet, plugged back to 2,820 feet and pumped 5 bbls. at 2,750-2,811 feet.

Hutchinson County

Amarillo Refining Co.'s No. 1 R. A. Jameson topped the pay at 3,145 feet, was drilled to a total depth of 3,230 feet, plugged back to 3,198 feet and made 15 bbls. Dean and others' No. 2 Johnson Brothers was drilled to a total depth of 3,030 feet, found the lime pay at 2,983-91 feet, was shot with 40 quarts at 2,-982-91 feet and made 5 bbls. oil and 40,000,000 feet of gas at 2,565-2,670 feet. Phillips Petroleum Corp.'s No. 1 Johnson Brothers was shot with 80 quarts at 2,845-86 feet and swabbed 55 bbls.

Wheeler County

Lone Star Gas Co.'s No. 1 Shelton, C of NE SE Section 22, Block 24, H. &G.N. Survey, made 56,000,000 feet of gas at 1,840-1,903 feet. Wish Kamper's No. 2 fee made 40,000,000 feet of gas at 1,480-1,505 feet.

ESTIMATED DAILY AVERAGE PRODUCTION
NORTH TEXAS

Week Ended February 16

Panhandle District—	
Carson County	5,590
Gray County	20,870
Hutchinson County	24,160
Moore County	1,500
Potter County	....
Wheeler County	730
Total this week	52,850
Total last week	56,915
Decrease	4,065
Wichita Falls District—	
Archer County	17,519
Baylor County	87
Clay County	440
Cooke County	2,545
Jack County	1,708
Montague County	7,133
Throckmorton County	703
Wilbarger County	26,923
Young County	7,370
Wichita County	28,361
Total this week	92,789
Total last week	93,530
Decrease	741
Ranger District—	
Brown County	8,923
Callahan County	3,716
Coleman County	3,673
Comanche County	1,193
Palo Pinto County	394
Ranger	5,624
Shackelford County	12,964
Stephens County	6,392
Total this week	42,879
Total last week	43,806
Decrease	927
Grand total this week	188,518
Grand total last week	194,251
Decrease	5,733

WICHITA COMPLETIONS

Archer County

Rathke Oil Co.'s No. 5 Wilson-A made 4 bbls. at 1,379-88 feet. The Texas Company's No. 1 Parkey was dry and abandoned at 1,851 feet. F. C. Grebin and others' No. 3 Hennig made 54 bbls. at 1,415-28 feet. Madden & Hunt's No. 16 Richardson made 55 bbls. at 1,282-89 feet.

Cooke County

W. E. Benson and Shell Petroleum Corp.'s No. 1 Ball was dry and abandoned at 1,578 feet. Kewanee Oil & Gas Co.'s No. 5 Timmis-A made 102 bbls. in broken shale found at 1,049-1,130 feet, 1,130-43 feet and 1,143-1,208 feet.

Jack County

Bryson Oil & Gas Co.'s No. 1 Daugherty was junked at 460 feet and skidded derrick 20 feet south.

Montague County

Harris & Simons' No. 5 Maddox made 26 bbls. at 836-54 feet. Pure Oil Co.'s No. 8 Maddox made 30 bbls. at 833-50 feet. The Texas Company's No. 7 Gist-B made 31 bbls. at 830-50 feet.

Wichita County

Carl B. Bailey's No. 29 Manger made 25 bbls. at 1,761-67 feet. W. H. Hammon's No. 12 McCarty made 64 bbls. at 1,462-91 feet. Humble Oil & Refining Co.'s No. 12 Taylor made 125 bbls. at 1,466-88 feet. T. F. Hunter's No. 14 Waggoner Brothers made 25 bbls. at 1,-731-46 feet.

Wilbarger County

Beasley and others' No. 1 Waggoner-B was dry and abandoned at 2,205 feet. Fain McGaha Oil Corp.'s No. 30 Waggoner-S made 125 bbls. at 2,398-2,412 feet. Its No. 32 Waggoner-S made 225 bbls. at 2,311-34 feet and 2,417-26 feet, 2,431-47 feet and was drilled to a total depth of 2,449 feet. Lesh & McCall's No. 1 Waggoner was dry and abandoned at 2,461 feet. Phillips Petroleum Corp.'s No. 2 Ann Waggoner made 12 bbls. at 2,320-25 feet and was drilled to a total depth of 2,330 feet. Its No. 1 Jennings Waggoner was dry and abandoned at 2,505 feet. Its No. 1 Waggoner-N made 9 bbls. at 2,346-61 feet. Its No. 3 Waggoner-BBB made 32 bbls. at 1,895-1,911 feet. Shaw Oil Co.'s No. 3 Waggoner-E made 200 bbls. at 2,412-40 feet and was shut down at 2,444 feet. Staley Wynne & Co.'s No. 4 Waggoner-F made 250 bbls. at 2,-411-16 feet. Wanderer Oil Co.'s No. 1 Waggoner was dry and abandoned at 1,-940 feet.

Young County

Bradstreet Co.'s No. 2 Snider made 9 bbls. at 580-86 feet. Fain McGaha Oil Corp.'s No. 1 Campbell-I was dry and abandoned at 950 feet. Pennell & Walton's No. 1 Birdwell & Hazard was dry and abandoned at 700 feet. Prairie Oil & Gas Co.'s No. 6 Kunkel was dry and abandoned at 1,203 feet. Weekly Oil Corp.'s No. 2 Jordon location was temporarily abandoned.

RANGER COMPLETIONS

Brown County

Young Brothers, Alexander & Woodley Petroleum Co.'s No. 21 Hickman was shot at 1,239-55 feet with 20 quarts and made 50 bbls. Amerada Petroleum Corp.'s No. 1 Smith was dry and abandoned at 652 feet. Brock & Switzer's No. 1 Dunn was dry and abandoned at 490 feet. Green and others' No. 1 Rierdan was dry and abandoned at 1,257 feet. H. Gutzman's No. 10 Stanley made 10 bbls. at 414-31 feet. Lloyd Oil Corp.'s No. 16 Collier made 6 bbls. after having been shot with 7 quarts at 417-33 feet. Paramount Oil Royalties' No. 3 Mayes was dry and abandoned at 558 feet.

Callahan County

Bradstreet & Holden's No. 11 Miller was shot with 40 quarts at 1,597-1,642 feet and made 60 bbls. Reiter Foster Oil Corp.'s No. 8-A Hatchett made 15 bbls. at 345-54 feet.

Coleman County

Roth & Faurot's No. 4 Sealey & Smith was dry and abandoned at 3,642 feet.

Eastland County

Lewis and others' No. 2 Lyerla was shot with 20 quarts at 1,283-99 feet and made 12 bbls. Y. L. Jones' No. 1 Gattis was dry and abandoned at 552 feet. Jordon and others' No. 1 Shamburger was dry and abandoned at 1,952 feet. G. P. Mitcham's No. 1 Waddington was dry and abandoned at 1,645 feet. Southern Oil & Production Co.'s No. 1 Thorp made 3,500,000 feet of gas at 1,705-14 feet, 270 pounds rock pressure.

Mills County

Whiteside's No. 1 Traylor was dry and abandoned at 1,865 feet.

Palo Pinto County

American Legion's No. 1 Mosley was dry and abandoned at 2,473 feet.

Shackelford County

Cranfill & Reynolds' No. 2 Diller was dry and abandoned at 915 feet. Ohio-Texas Oil Co.'s No. 1 Matthews made 300 bbls. at 1,136-53 feet.

Stephens County

The Texas Company's No. 15 Gholson was dry and abandoned at 4,309 feet.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week ended February 9

CARSON COUNTY

Company, well, farm, name, section and block—	Remarks—
Denson et al's No. 1 W. E. Cobb, 930 ft. from N line, 280 ft. from E line, W½ NW, Sec. 184, Blk. 2, I.&G.N. Sur.	Drlg. 2,175 ft.
Delmar Oil Co.'s No. 3 Noel, 330 ft. from E line and 990 ft. from N line W½ SE, Sec. 198, Blk. 3	Drlg. 1,860 ft.
Gulf Prod. Co.'s No. 1-E Cooper, 330 ft. S and W of NE cor. SW, Sec. 5, Blk. 9, I.&G.N. Sur.	Location.
Holmes et al's No. 1 Quinn, 330 ft. from S and 330 ft. from E line SW, Sec. 7, Blk. 9, I.&G.N. Sur.	Drlg. 2,510 ft.
Marland Prod. Co.'s No. 1 Burnett-L, 440 ft. S and 1,320 ft. W of NE cor. Sec. 79, Blk. 4, I.&G.N.R.R. Sur.	Fishing 340 ft.
McElroy Oil Co.'s No. 1 Lewis, 330 ft. S and E of NW cor. of SW of NE Sec. 115, Blk. 4, I.&G.N.R.R. Sur.	Rig.
Morris et al's No. 1 Barnard, NW cor. SW SE, Sec. 44	S. D. 1,900 ft.
Reynolds et al's No. 1 E. Cooper, 330 ft. from S line and 330 ft. from E line NW, Sec. 5, Blk. 9, I.&G. N.R.R. Sur.	Drlg. 2,725 ft.
Spartan Oil Co.'s No. 1 S. Bednorz, NW cor. E½ NW, Sec. 202, Blk. 3, I.&G.N. Sur.	Drlg. 2,587 ft.
Skelly Oil Co.'s No. 1 Hedrick, 660 ft. from N line and 660 ft. from W line Sec. 239, Blk. B-2, H.&G.N. R.R. Sur.	Location.
Skelly Oil Co.'s No. 11 Schaffer, 330 ft. from S line 990 ft. from the W line, Sec. 88, Blk. 4, I.&G.N. R.R. Sur.	Drlg. 1,850 ft.
Skelly Oil Co.'s No. 12 Schaffer, 330 ft. from S line and 1,650 ft. from the W line of Sec. 88, Blk. 4, I.&G.N.R.R. Sur.	Set 10-in. 1,107 ft.
Travis et al's No. 1 D. A. Harrell, C NE NE, Sec. 162, Blk. 7, I.&G.N. Sur.	Drlg. 2,930 ft.
Ware et al's No. 1 Ware, 990 ft. S and 400 ft. E NW cor. Sec. 18, Blk. 3, A.B.&M. Sur.	Drlg. 3,773 ft.

(Continued on Page 111)

ETHYL GASOLINE DISTRIBUTION

CHICAGO, Feb. 16.—The Johnson Oil & Refining Co. is planning to begin the distribution of Ethyl gasoline through its stations in Illinois, Wisconsin, Indiana and Michigan on March 15 instead of April 1 as announced. Quite a number of customers have signed contracts with the Johnson organization for the distribution of Ethyl product which will be refined under a contract with the Ethyl Gasoline Corp.

The Johnson Oil & Refining Co. has been distributing this gasoline through its stations outside of the Standard Oil Co. (Ind.) territory for some time. The Standard Co. plans to continue to distribute Ethyl gasoline as in the past but will not have the exclusive rights.

ILLUSTRATION INVERTED

In the advertisement of the Tulsa Boiler & Machinery Co. in The Oil and Gas Journal of January 10 an illustration of the Tulsa type mist extractor was inverted. The same advertisement appears on page 6 in this issue, showing the extractor in the correct position.

May Open Third Pool in Pecos County

Big Drop in Potential Production of Winkler County and Increase in Southern Howard Potential. Settles Extended

By James H. Dameron
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Feb. 18.—Another Pecos County wildcat showing oil, a big drop in the potential production of Winkler County and an increase in potential of southern Howard County, along with the several developments in semiwildcat and proven territories, were among the more salient developments in the Permian Basin during the past week. McCarty Oil Co.'s No. 1 Gray, in the southwest part of Section 591, G.C. &S.F. Survey, Abstract 3,010, northeast of Fort Stockton and surrounded by a group of dry holes, threatens to open another shallow pool in Pecos County. The well has 900 feet of fluid in the hole from pay topped at 1,162 feet after standing 22 hours. The oil tested 32 gravity.

Whether or not the 900 feet of fluid contains any water had not been determined Monday, as the bailer had not been run. Casing is to be set with a packer early in the week and a test made. This well is several miles south of Talbot & Dittman and Atlantic company's No. 1 Unsicker, which had 600 feet of fluid in the hole after standing two weeks at a total depth of 1,365 feet.

In the event a commercial well is completed in this area it will mark the opening of the third pool in Pecos County after close to 75 efforts made since the discovery of Yates. The second pool to be opened was the Pecos Valley Pool, farther north, and last week the second well in that pool was drilled into the pay.

Pecos Valley Oil Co.'s No. 2 fee, Section 22, Block 10, had the pay at 1,617-25 feet, and is estimated good for anywhere between 75 and 125 bbls. daily. The discovery well was drilled in on November 24 and averaged 90½ bbls. daily for the first 74 days. It has never been thoroughly cleaned out and its production is down to around 65 bbls. daily. On the fifth of the month there was 6,700 bbls. in storage on the lease. This oil is to be run to a loading rack on the Orient and shipped to the San Angelo Refining Co. at San Angelo under contract.

Settles Area Extended

The Settles area in southern Howard County was extended westward when Howard County Oil Corp.'s No. 1 Kloh, Section 5, Block 32, Township 2s, swabbed and flowed 1,025 bbls. in 24 hours from pay at 2,234-56 feet. With this extension to the west and the Plymouth Oil Co.'s southwest extension almost an entire section was proved. Since making the 24-hour swab test the western extension has been shut down for additional storage.

Half a mile south of the discovery well in the O'Brien Pool, Simms Oil Co. and Southwest Oil Production Co.'s No. 1 Sealy, SE NE Section 50, Block F, appears as if it will make as good an initial producer as did the discovery well. Connections are being made at a total depth of 2,896 feet, and the hole is almost full of oil. This well is offset to the east by a dry hole and it will be recalled the north offset to the discovery well was a failure.

Leck Well Puzzles

Amerada Petroleum Corp.'s No. 2 Daugherty, SW cor. SE Section 3, Block 74, in the Leck area, is an unusual well as well as puzzling. At a total depth of 3,120 feet it tested 35 bbls. per hour, 12 per cent water, a couple of weeks ago. At 3,110 feet the well made 65,000,000 feet of gas and sprayed oil and water. It was shut in for almost two weeks following the cementing of 6⅝-inch casing at 3,071 feet.

Early in the week the well was opened for a proration test and in 15½ hours it flowed 626 bbls. of pipe line oil. The gas, however, had decreased to 20,000,000 feet daily. It is offset by the Empire Gas & Fuel Co.'s No. 2 Daugherty, which is the best completion thus far in the Leck Pool.

New Hendricks Well

One of the most interesting wells in the Hendricks Pool was Atlantic Oil Producing Co.'s No. 7 Hendricks-E, NE NW Section 41, Block B-5. It is in the center of the pool and was drilled to a total depth of 2,745 feet, and while it made a big volume of oil it also made a big volume of water. The hole was plugged back to 2,575 feet, and on a test it made 5,000 bbls. of pipe line oil and no water has shown thus far.

Howard Proration

New proration gauges for the Roberts and Settles Pools in southern Howard County show an increase in potential for that closely related area. The 82 wells in the three lime producing horizons have a combined total potential production of 65,246 bbls. The following table shows the number of producing wells in each horizon and their potential production:

Pay horizon—	Wells	Potential	Allowance
3,000 feet	55	48,041	28,967
2,500 feet	16	4,375	3,485
2,200 feet	11	12,830	7,897
Total	82	65,246	40,349

Runs to Storage

Runs to storage in West Texas dropped to 23,161 bbls. daily for the week, due to increased runs through trunk lines and the increase in tank car shipments. The pipe line companies are moving oil almost to capacity. The combined capacity of all lines now operating out of West Texas is 290,000 bbls., and the runs for the last period covered totaled 271,188 bbls. daily.

Two new refineries started operating during the last period and their runs offset the decrease in runs to ther plants and kept the outlet in that direction about constant. Great Western Refining Co. at Big Spring took on an average of 3,312 bbls. on its first week of operation, and Burford Oil Co.'s plant at Pecos started off running 3,732 bbls. daily. The latter plant is now running around 5,200 bbls. daily of Winkler County crude, and is the only complete plant in operation in West Texas.

The following table shows the crude movement in West Texas for the past week:

Runs through trunk lines	271,188
Tank car shipments	17,196
Runs to refineries	37,354
Total daily disposition	345,741
Daily average production	368,902
Runs to storage	23,161

Estimated Daily Average Production
WEST TEXAS
Week ending February 16

County—	Wells	Bbls.
Crane County	276	38,650
Crockett County	45	1,988
Ector County	2	*
Fisher County	7	915
Glasscock County	16	962
Howard County	245	39,531
Jones County	73	6,015
Loving County	8	200
Mitchell County	142	2,520
Pecos County	291	83,912
Reagan County	236	18,773
Runnels County	3	137
Scurry County	5	31
Upton County	264	13,498
Ward County	1	85
Winkler County	539	164,821
Total this week	2,153	372,139
Total last week	2,128	375,349
Difference	25	3,210

WILDCAT OPERATIONS IN WEST TEXAS

Week Ended February 16

Company, farm and location—	Remarks—
ANDREWS COUNTY	
Deep Rock Oil Co.'s No. 1 Hostetler, 2,310 ft. N and W of SE cor. Sec. 20, Blk. A-46	Hole full water 1,390 ft.; underreaming 10-in. casing; top salt 1,890 ft.; drlg. 2,835 ft., salt and anhydrite.
BORDEN COUNTY	
Gibson & Johnson's No. 1 Higginbotham, middle of S line of Sec. 3, Blk. 31, Twp. 3n, T.&P.R.R. Sur.	Location.
C. E. Hyde et al's No. 1 H. D. Beal, C NE Sec. 14, Blk. 31, Twp. 3n, T.&P.R.R. Sur.	Location.
Teas & Wheeler's No. 1 Long, 1,320 ft. N and E of Sec. 27, Blk. 30, T.&P. Sur.	Location.
BREWSTER COUNTY	
E. W. Bateman et al's No. 1 Nevill, 2,000 ft. from S line and 1,000 ft. from W line of Sec. 64, Blk. 13, G.H.& S.A.R.R. Sur.	Drlg. 1,710 ft.
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 4, Blk. G-15, G.C.&S.F.	Drlg. 475 ft.
Cowden & Bowser's No. 1-A Jackson & Harmon, Sec. 1, Blk. 331, T.C.R.R. Sur.	Set 8-in. 1,530 ft.; shut down 2,000 ft.
Forrest Oil Co.'s No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,145 ft.
J. M. Hickey's No. 1 Jackson & Harmon, NE cor. Sec. 182, Blk. 9, G.H.&S.A. Sur.	Shut down 1,150 ft.
Johnson & Weekly's No. 1 Jackson & Harmon, C Sec. 104, Blk. 10, G.H.&S.A. Sur.	Location.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 mi. S of Alpine	Shut down 1,740 ft.
Williams and others' No. 1 Poncey, 459 ft. S and 1,063 ft. E Sec. 26, Blk. 214, T.&St.L.R.R. Co.	Shut down 515 ft.
COKE COUNTY	
Cates & Dennis' No. 1 Mimms, 2,500 ft. S and 330 ft. E of NW cor. Sec. 47, Blk. 4, T.&P. Sur.	Underreaming 1,585 ft.
Cates & Dennis' No. 2 Mimms, 2,340 ft. N and W SE cor. Sec. 8, Blk. W, T.&P. Sur.	Spudded and shut down.
Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H.&T.C. Sur., elev. 2,750 ft.	Shut down 2,860 ft.
Mid-Kansas Oil Co.'s No. 1 W. E. Lackey, 330 ft. N and E of SW cor. Sec. 273, Blk. 1-A, H.&T.C.	Set 8-in. casing 3,033 ft.
CONCHO COUNTY	
Duffey & Silk's No. 1 Hill, 150 ft. N and E of SW cor. Sec. 8, Blk. 70, H.&T.C.	Drlg. 1,720 ft.
Duffey & Silk's No. 1 Lovelace & Harmon, Locket, 1,056 ft. N and 640 ft. W of SE cor. Sec. 66, Blk. 70, H.&T.C. Sur.	Shut down 650 ft.
Exploration Co.'s No. 2 Hartgrove, 900 ft. S and 985 ft. E of NW cor. Johann Scheuch Sur. No. 240	Rig.
Loyd Jones Co.'s No. 1 Jones, 420 ft. S and 15 ft. E of NW cor. John G. Reh Sur. No. 1,878	Drilled to 660 ft. and shut down.
CRANE COUNTY	
Duffey and others' No. 4 Cowden, 1,320 ft. S and 440 ft. W of Sec. 18, Blk. X, C.C.S.D.&R.G.N.G.	Total depth 2,432 ft., preparing to pump.
Gulf Prod. Co.'s No. 6 Waddell, C NW NE Sec. 12, Blk. B-25	Top salt 1,825 ft.; drlg. 2,435 ft.
CROCKETT COUNTY	
Barbara Oil Co.'s No. 1 Cox, 237 ft. S and 1,190 ft. E of NW cor. R. B. Dickenson Sur.	Show gas 1,000 ft.; drlg. 1,295 ft.
Lewis & Daniels' No. 1 Pecos River Bed, 19 yards S and 37 degrees E of NW cor. Sec. 33, Blk. 1, I.&G.N. Sur.	Shut down 236 ft.
W. W. Donnelly & Young's No. 1 Shannon, SW SW SE Sec. 42, Blk. BB, T.C.R.A. Sur.	Shut down 1,719 ft.
W. W. Donnelly & Young's No. 1 Middlebuster, C. Sec. 11, Blk. 9, D.&S.E. Sur.	7,000,000 ft. gas at 1,663 ft.; shut down 1,690 ft.; small oil show.
Moncrief, Donnelly et al's No. 2 Todd, C Sec. 53, Blk. UV, G.C.&S.F. Sur.	Location.
Moncrief, Donnelly et al's No. 3 Todd, C Sec. 55, Blk. UV, G.C.&S.F. Sur.	Location.
Tidal Oil Co.'s No. 1 Weathered, 5,055 ft. SW of NE line and 330 ft. SE of NW line Sec. 30, Blk. 31, H.&T.C.R.R.	Drlg. 525 ft.; top salt 485 ft.
J. D. Wheeler's No. 1 State Land, 744 ft. S and 1,250 ft. E from SE cor. Sec. 73, Blk. 1, I.&G.N.R.R. Sur., but in Vacancy Strip	Shut down 337 ft.
CULBERSON COUNTY	
Hickey & Stiver's No. 1 C. O. Finley, 660 ft. N and 1,980 ft. W. Sec. 20, Blk. 82	Hole full water; small oil show 1,331 ft.; pipe set 1,418 ft.; shut down 1,740 ft., lime.

(Continued on Page 108)

WEST TEXAS COMPLETIONS

Edwards County

McMann Oil & Gas Co.'s No. 1 Schreiner, 330 feet from south and east lines of Section 50, Block F, was dry and abandoned at 3,895 feet.

Howard County

Donnelly and Marland Oil Co.'s No. 1 Clay was drilled to a total depth of 3,135 feet, found salt water at 1,965-40 feet, was plugged back to 1,990 feet, shot with 40 quarts at 1,907-35 feet and made 40 bbls. oil and 12 bbls. of water. Laurel & Cosden's No. 8 Roberts, 2,310 feet from south and 280 feet from east lines of Section 136, Block 29, topped the lime at 2,190 feet, topped the pay at 2,929 feet, was drilled to a total depth of 2,980 feet and had an initial production of 65 bbls. hourly. Green Oil Co.'s No. 6 Clay, 1,315 feet from south and 1,070 feet from east lines of Section 127, Block 29, had an initial production of 75 bbls. at 1,780-1,804 feet after having been shot with 30 quarts. This well was drilled to a total depth of 1,870 feet. Magnolia Petroleum Co.'s No. 16 Roberts, 990 feet from south and 1,650 feet from west of Section 136, Block 29, had an initial production of 6 bbls. at 2,520-82 feet. Moody Oil Co.'s No. 7 Roberts-B, 330 feet from north and west lines of Section 137, Block 29, topped the lime at 2,076 feet, topped the pay at 2,600 feet, was drilled to a total depth of 2,677 feet and had an initial production of 250 bbls. Moody Oil Co.'s No. 4 Roberts-E, located in Section 136, Block 29, location was abandoned. Its No. 9 Roberts-E, located in Section 136, Block 29, had an initial of 60 bbls. hourly at 2,972-91 feet. Schmerhorn Oil Co.'s No. 3 Roberts-A, located 1,650 feet from north and 990 feet from east of Section 137, Block 29, topped the pay at 2,930 feet, was drilled to a total depth of 2,962 feet and had an initial production of 70 bbls. hourly.

Irion County

Mertzon Oil Co.'s No. 1 Matt Roach was dry and abandoned at 2,202 feet.

Mitchell County

E. P. Campbell's No. 1 Pond, 990 feet from south and east lines of Section 79, Block 27, was dry and abandoned at 3,003 feet.

Pecos County

Mid-Kansas Oil & Gas Co.'s No. 12 Yates-C, 811 feet from north and 871 feet from west lines of Section 60, Block 1, topped the lime at 1,095 feet, topped

(Continued on Page 149)

Gasoline is the desired product of cracking, yet many refiners are satisfied to charge a valuable oil—gas oil—to their cracking units and produce therefrom more cheap fuel oil than gasoline, and then have to worry about disposing of the fuel oil

If you do run valuable gas oil it can be charged to a Dubbs Cracking unit and by the non-residuum method of operation give the highest possible yields of premium gasoline without degrading any of this valuable gas oil into cheap fuel oil

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

Proration Effective; Production Drops

Output of Flush Pools in Oklahoma Shows Decline of 20,000 Bbls. Daily Despite Opening of Mission Area

By J. L. Dwyer

The first few days of proration in the flush fields of Oklahoma were accompanied by a marked decrease in the output of these areas. The machinery of proration was naturally slow in getting started, but it is evident from a comparison of the output of the flush districts that material reductions are being made by the majority of operators.

The six-day-a-week policy of two major companies, the Prairie Oil & Gas Co. and the Barnsdall Oil Co., assisted these concerns in holding their output within the permitted quantity. Both companies have adopted the policy of shutting down all producing and drilling wells in the Greater Seminole region every Sunday, and in addition, the Prairie Oil & Gas Co. has started shutting down its wells in the Burbank Field on Sunday.

The production of the Greater Seminole area and also the St. Louis Pool, which has been included in the region to be curtailed, on Sunday morning and on Monday morning follows:

Pool—	Sunday	Monday
Little River	87,180	75,205
Maud	44,550	43,340
Mission	14,970	29,522
Bowlegs	38,908	31,396
Earlsboro	63,413	51,653
Seminole	34,311	29,521
Searight	9,267	9,477
Total	288,599	270,114
St. Louis	113,162	109,607

The daily average production for the State of Oklahoma for the week ending Saturday, February 16, showed a decrease of 20,000 bbls. although the proration condition applied only on two days of this period. The State was producing an average of about 707,000 bbls. for the period mentioned against a figure of 727,820 bbls. for the previous week. The St. Louis Pool was responsible for about 7,000 bbls. of this, while the pools of the Seminole region proper declined about 10,300 bbls.

Mission Pool Opened

In considering the figures showing the comparative output for Sunday morning and Monday morning of this week, it should be considered that the Mission Pool wells were being drilled into the Wilcox sand on Saturday and Sunday, and this pool's production increased from 1,100 bbls. on Saturday morning to 29,522 bbls. on Monday morning.

Deducting the 29,522 bbls. of Mission oil from the total production of the Seminole pools on Monday morning would make the output of those pools total 240,592 bbls., or about 40,000 bbls. less than they have been averaging for the past 10 days; and almost 60,000 bbls. less than the average they established for the week ending Saturday, February 9.

The Maud Pool, which has been noted chiefly for the Misener sand and Hunton lime wells, which have been completed on the west side of Township 8-5, touched a new peak this week when it produced 44,500 bbls. There is a belief in the minds of many who have carefully considered this region that the pool is just about at its peak. There were many who were at first inclined to believe that it would touch 60,000 bbls., but the rapid rate of decline which has been experienced on many of the wells influences the opinion that the region is probably within 10,000 bbls. of its peak. It is fairly well drilled up at this time. The above conclusions, of course, are based upon the prospects of Misener and Hunton production only, and they do not include the possibility of any Wilcox sand oil being discovered.

The well which caused such a sensation 10 days ago when it was completed is continuing to drop. It is the Gypsy Oil Co.'s No. 3 Miller, in Section 18-8-5. It had an initial production estimated at 1,000 bbls. hourly, and the first full day's gauge showed 8,000 bbls. The well was down to 6,300 bbls. daily last week, and is now making 4,395 bbls. of oil daily. The owners of the offset wells have made preparations to handle wells of heavy initial, but thus far they have been disappointed. The Gypsy's well may mean that the big production of the Misener sand will run to the west, as that direction is still open.

Simpson Sand in Maud Pool

A very interesting development of the area last week was the finding of some Simpson sand oil in the Maud Pool. The Twin State Oil Co.'s No. 2 Calvin, NW cor. SW Section 7-8-5, found this horizon 4,347-58 feet, and the hole filled with oil. The well made a few small flows, and is now being swabbed. It produced 436 bbls. in 24 hours by this method, and it is showing no water. The owners have decided to stop it at the present depth, and thereby avoid any possibility of further exploration which might lead to more discoveries in the way of production.

The region around the Twin State well has been mentioned in this department as having exceptionally good possibilities for Wilcox oil, and the Simpson sand discovery lends further weight to this theory.

There is slight change in the pipe line situation at Seminole. The daily average runs for the week ending Saturday, February 16, follow:

Barnsdall	5,250
Champlin	6,927
Continental	709
Consolidated	250
Mid-Continent Petroleum	8,132
Empire	9,772
Gulf	32,396
Independent	870
Magnolia	17,462
Oklahoma	46,361
Prairie Pipe	70,191
Pure	4,951
Shaffer	5,200
Shell	9,890
Sinclair	27,246
Texas	17,406
Tidal	3,300
White Oak	2,400
Total barrels	278,723

The daily average tank car shipments for the same period were:

Amerada	2,631
Carter	7,882
Pure	4,101
Total barrels	14,614

St. Louis Pool Quiet

The St. Louis Pool of Pottawatomie County was rather quiet last week. There was one failure recorded north of the production. It was the Magnolia Petroleum Co.'s semiwildcat test No. 1 Gassoway, SE cor. SW SW Section 12-7-4, which was dry and abandoned with a hole full of water in the Simpson sand. In the south end of the pool, the McCulloch Oil Co. and others' No. 4 Bruno, SE cor. NE Section 25-7-4, is good for 463 bbls. in the Simpson sand found at 4,179-86 feet.

A failure which cuts off a possible spread of production in this territory is the Magnolia Petroleum Co.'s No. 3 Cherry-B, SE cor. SW NE Section 26-7-4. This well had the Simpson sand at 4,190-4,225 feet with a hole full of water and was plugged back to the Viola lime, where it is swabbing 152 bbls. daily.

On the east side of the St. Louis Pool, the Magnolia's No. 2 G. W. Fyke-B, SW cor. NW SE, Section 20-7-5, had the Wilcox sand 4,314-21 feet, and swabbed 452 bbls. in 18 hours.

The pipe line situation at St. Louis shows small change. The daily average runs for the week ending Saturday, February 16, follow:

	Bbls.
Consolidated	2,156
Gulf	8,380
Independent	12,083
Magnolia	27,862
Oklahoma	10,858
Prairie	29,597
Shell	3,500
Sinclair	22,502
Texas	1,150
Tidal	3,700
Total	127,288

WILDCAT OPERATIONS IN OKLAHOMA

NORTHERN OKLAHOMA

LATTIMER COUNTY

Company, farm and location—	Remarks:
Limestone Oil & Gas Co.'s No. 1 McMurray, SW cor. SW Sec. 15-5-18	1,000,000 ft. gas 2,518-20 ft; U.R. csg.

GRANT COUNTY

Cowden and others' No. 2 Vollmer, CEL NE SW Sec. 22-25-4w	Shut down 5,640 ft.
Lario-Lathrop's No. 1 Cornell, NW cor. NW Sec. 24-28-3w	Drlg. 2,780 ft.

HARPER COUNTY

Hoffer Oil Co.'s No. 1 Cooper, NW cor. SE SE Sec. 12-25-22w	Shut down 4,130 ft.

KAY COUNTY

Wentz Oil Corp.'s No. 1-A Ward, C NW SE SW Sec. 32-27-1e	Drlg. 2,360 ft.

WOODWARD COUNTY

Sharon Oil Co.'s No. 1 Elmore, SW cor. SW Sec. 25-21-21w	Rig blown down 3,025 ft.
Billy's Oil Co.'s No. 1 Watt, C SE Sec. 9-23-20w	Drlg. 2,342 ft.
Burgoyne Brothers' No. 1 Merkins, SW cor. SE NE Sec. 15-21-19w	Shut down 1,910 ft.
Wilson et als' No. 1 Unknown, NE cor. SW Sec. 4-23-16w	Rig.

GARFIELD COUNTY

E. L. Love and others' No. 1 White, SE cor. NW Sec. 9-24-6w	Shut down 4,755 ft.

NOBLE COUNTY

Alco Royalty Co.'s No. 1 Waltermire, SE cor. NW Sec. 33-21-1w	Drlg. 2,620 ft.
Marland Oil Co.'s No. 1 Kidd, NW cor. SW Sec. 32-20-1w	Shut down 5,290 ft.; plugging back to show oil 1,836 ft.

KINGFISHER COUNTY

McKinney & Crawford's No. 1 Sturgeon, NE cor. SW Sec. 27-16-6w	Shut down 4,895 ft.

LOGAN COUNTY

Haley & Smith's No. 1 Guier, SE cor. SW Sec. 33-18-3w	U.R. 3,970 ft.
J. L. Donahoe's No. 2 fee, SW cor. NW SE Sec. 21-18-2w	Dry and abd. 6,022 ft.

BLAINE COUNTY

Lowen and others' No. 1 Unknown, NW cor. SW NW Sec. 27-16-11w	Spudded and shut down; renewing leases.
W. J. Donnelly, trustee's, No. 1 Dickens, NE cor. SE Sec. 26-15-12w	Drlg. 4,610 ft.
Ragland and others' No. 1 Unknown, C NW SW Sec. 13-19-10w	Rig.

LINCOLN COUNTY

Phillips Pet. Co.'s No. 1 Stephens, SE cor. NW Sec. 29-12-3	Rig.
Morgan & Flynn's No. 1 Finlay, SW cor. SW Sec. 19-16-6	Rig.
Wheeler & Mote's No. 1 Kemmer, NW cor. NE SW Sec. 2-16-5	Drlg. 1,620 ft.

(Continued on Page 101)

Caddo County

Caddo Oil Co. made location for No. 1 Bontrager, NE cor. NW, Section 9-5-9w. No. 2 McKenna, SE cor. SW SW, Section 4-5-9w, made 10 bbls. from sands at 1,904-2,446 feet.

Canadian County

Wirt Franklin Petroleum Corp. and Indian Territory Illuminating Oil Co.'s No. 1 North, C NE NE, Section 18-13-10w, has been abandoned at 3,702 feet.

Carter County

Magnolia Petroleum Co.'s No. 1 Archer, SE cor. SW NW, Section 14-1s-3w, has been completed for 47 bbls. in sands at 2,412-53 feet. No. 3 J. Pollock, NE cor. SE SE, Section 14-1s-3w, was completed for 70 bbls. in sands at 2,227-2,367 feet. No. 3 Choens, SE cor. SW, Section 33-1s-3w, made 25 bbls. from sand at 4,115-48 feet.

Cotton County

Amerada Petroleum Corp. is building the rig for No. 1 De Lana, SE cor. NW NW, Section 31-4s-9w. Consolidated Oil Co. made location for No. 1 Conklin, NW cor. Section 26-3s-11w.

Creek County

Silurian Oil Co. made location for No. 3-A Starr, NE cor. Section 17-18-7. L. Emery and others staked location for No. 1 Hope, NE cor. SW SW, Section 6-17-9. Collins and others moved a machine to the location for No. 1 Halsell, NW cor. SE SW, Section 12-17-11. Transcontinental Oil Co. has the rig up for No. 1 Johnson, SW cor. Section 30-16-10. Red Bank Oil Co. has built the rig for No. 1-A Page, SW cor. SE NE, Section 34-16-10. C. G. Tibbens' No. 39 Conneseny, NE cor. SE NW, Section 30-15-9, is drilling at 300 feet. Madden & Madden made location for No. 1 McNack, SE cor. NE SE, Section 34-15-10.

H. H. Taylor and others' No. 1 Goat, SW cor. NW SE, Section 31-18-11, was completed for 7,000,000 feet of gas in sand at 2,213-18 feet. C. G. Tibbens' No. 5 Jackson, SE cor. NE SW, Section 4-18-12, made 20 bbls. from sand at 2,199-2,204 feet. Mid-Continent Petroleum Corp.'s No. 29 Stewart, NE cor. NW SE, Section 15-17-7, Drumright Pool, flowed 415 bbls. from sand at 2,901-06 feet. Bengal Oil & Gas Co.'s No. 9 Tiger, SE cor. SW, Section 17-17-7, was completed for 300 bbls. in sand at 2,692-2,747 feet.

Twin State Oil Co.'s No. 6 Coachman, NW cor. SW NE, Section 20-17-7, made 200 bbls. from sand at 2,775-95 feet. Irelan and others' No. 5 Unallotted, C NW SW, Section 11-17-10, is a 10-bbl. well in sand at 1,760-87 feet. Roxaline Oil Co.'s No. 2 Boling, C SW SW, Section 27-17-12, made 3,000,000 feet of gas in sand at 1,765-1,800 feet.

Garfield County

Oil States Co.'s No. 1 Barnes, SW cor. NE NW, Section 15-23-3w, which is being deepened from 4,000 feet, is fishing tools at 4,697 feet. C. E. Knox's No. 1 Bangeter, NE cor. NW, Section 35-22-4w, is shut down for water at 2,135 feet. Marland Production Co.'s No. 2 Garber, SW cor. NW SE, Section 19-23-3w, has been completed for 4,200,000 feet of gas in sand at 4,820-80 feet after plugging back from 5,553 feet.

Grady County

Wichoma Oil Corp. made location for No. 1 E. Morrison, NE cor. Section 28-4-5w. Meridian Gas Co.'s No. 2 Glover, SE cor. NW NE, Section 27-5-8w, has been completed for 6,000,000 feet of gas at 2,300 feet. M. B. Blake's No. 1 Foster, C SE NW, Section 35-5-7w, Chickasha gas area, made 2,000,000 feet of gas in sand at 1,937-46 feet and 2,028-70 feet. Champlin Oil & Refining Co.'s No.

Wilson Model S Type 200 Amperes Welding Machine—single-operator electric-motor-driven. Welding range, 10-300 amperes.

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WILSON

WELDING MACHINES AND WELDING WIRE

2 Kerns, SE cor. SW SW, Section 13-4-8w, has been abandoned at 3,440 feet.

Grant County

Marland Oil Co. and Waggoner's No. 2 Frantz, SW cor. SE SE, Section 35-28-3w, is moving in rotary rig.

Hughes County

The Texas Company's No. 1 Street, NE cor. NW SW, Section 21-7-8, was completed for 53 bbls. in sand at 3,130-69 feet.

Jefferson County

Bridwell Oil Co.'s No. 1 Trout, CEL NE NE, Section 33-6s-6w, has been abandoned at 2,455 feet. Roberson & Wood's No. 1 Seay, SW cor. SE NE, Section 36-6s-6w, is dry and abandoned at 2,203 feet. O. W. Beck's No. 1-A Seay, NE cor. NW, Section 3-7s-5w, made 135 bbls. from sand at 1,120-46 feet.

Kay County

C. A. Leonard and others' No. 1 Smith, SW cor. NW NE, Section 28-27-1, was completed for 600,000 feet of gas in sand at 837-55 feet. Ingram & Wilson's No. 1 School Land, C NE NE, Section 36-25-1w, is dry and abandoned at 845 feet.

Kiowa County

Engle and others' No. 1 Kelsey, NW cor. SW, Section 20-7-17w, has spudded to 40 feet and shut down. Russell & Sloan, Inc.'s, No. 1 Funkhouser, C NW, Section 23-7-17w, is a spudder rigging up. Ben S. Brown's No. 1 Ditmar, NE cor. Section 19-6-16w, is shut down at 70 feet. L. P. McWhirter's No. 1 Roger, SW cor. NW NE, Section 2-5-17w, is drilling at 50 feet. Russell & Sloan, Inc.'s, No. 1 Madden, NE cor. SW SW, Section 32-6-14w, has been abandoned at 952 feet in granite.

Logan County

Shell Petroleum Corp. is building the rig for No. 7 McCully, NW cor. SE SE, Section 30-19-4w, Roxana Pool. The rig is also under construction for No. 8 McCully, SE cor. SW SE, Section 30-19-4w. J. S. Cosden is moving in the rig for No. 1 Gardner, NE cor. NW, Section 31-19-4w. Blackwell Oil & Gas Co. and Texas Pacific Coal & Oil Co. made location for No. 1 Quigley, SE cor. NE SW, Section 21-18-4w, Crescent-Lovell Field. Shell Petroleum Corp.'s No. 1 Ross "B" is dry and abandoned at 6,195 feet.

Muskogee County

Arthur Oil Co. has a machine on the ground for No. 20 A. Hawes, SE cor. NE SE, Section 33-15-18. W. J. Metzger has a machine on the location for No. 7 Francis, CEL SW SW, Section 1-14-18. C. O. Buckles' No. 4 Barnett, C NE SE, Section 8-15-15, has been deepened to and at 1,671-75 feet and completed for 15 bbls.

Oklahoma County

Anderson & Prichard made location for No. 1 Hulbelt, C SW NE, Section 2-11-3w, Oklahoma City Pool. Wirt Franklin Oil Corp. has the rig on the ground for No. 1 Lowery, NW cor. SE NW, Section 12-11-3w.

Okfuskee County

Mid-Continent Petroleum Corp. and others' No. 1 Rowe, NW cor. NE, Section 33-10-9, is a rig under construction. Minnehoma Oil Co.'s No. 1 Fixico, NW cor. SW SE, Section 29-12-10, made 250 bbls. from sand at 2,910-38 feet. Atlantic Oil Producing Co.'s No. 5 Simmons, NE cor. SE SE, Section 11-10-11, was completed for 60 bbls. in sand at 2,025-35 feet. No. 1 Fields, NW cor. Section 13-10-11, was completed for 30 bbls. in sand at 2,069-80 feet.

Okmulgee County

C. V. Prince's No. 7 Adams, SE cor. SW NE, Section 12-14-14, made 1,500,000 feet of gas from sands at 1,654-61 feet and 1,670-77 feet. Star Development Co.'s No. 6 Scott, SW cor. NW SE NE, Section 15-13-14, was completed for 5 bbls. in sand at 1,392-1,403 feet.

Osage County

Kewanee Oil & Gas Co. made location for No. 9, SW cor. NE NW SE, Section 34-27-6, Burbank Pool. J. W. Kelso moved a machine to the location for No. 1, SE cor. SW NE, Section 17-27-10. Minnehoma Oil Co.'s No. 3, NW cor. SE, Section 11-26-8, is dry and abandoned at 2,552 feet. Mid-Kansas Oil & Gas Co.'s No. 4, NE cor. SE SW, Section 36-22-8, made 196 bbls. from sand at 448-76 feet. L. G. Stanley's No. 5, NW cor. SW SE, Section 36-22-8, has been completed for 150 bbls. in sand at 444-70 feet.

Pawnee County

Peter Adamson, Jr.'s, No. 3 Thomas, NE cor. SE SE NW, Section 25-21-8, has spudded and shut down. J. H. Markham, Jr., and others' No. 8 Reynolds, SW cor. Section 25-21-28, is drilling at 460 feet. Houston Oil Co. made location for No. 1 Collins, NW cor. SW SW, Section 19-20-7. Superior Oil Corp. and others' No. 1 Smith, CWL NE NW, Section 34-20-9, was completed for 150,000 feet of gas in sand at 2,172-82 feet.

Pontotoc County

Texas Pacific Coal & Oil Co. has the rig on the ground for No. 5 Hutchins, NW cor. SE SE, Section 19-5-8, Allen Pool. Ogg Petroleum Co.'s No. 3 Roberts, SW cor. SE SW, Section 29-5-5, is pumping 50 bbls. from Viola lime at 2,480-2,664 feet. W. R. Ramsey's No. 5 Millner, NW cor. SW, Section 17-5-8, Allen Pool, was completed for 400 bbls. in sand at 2,625-2,848 feet. Westheimer & Daube's No. 9 Wade, NW cor. SE SW, Section 19-5-8, made 450 bbls. from sand at 2,620-56 feet.

Pottawatomie County

Pure Oil Co. has the cellar dug for No. 1 Wallace, SW cor. NW, Section 17-8-5, Maud Pool. Phillips Petroleum Co. has dug the cellar for No. 2 Wallace, NW cor. SW, Section 17-8-5. Mid-Continent Petroleum Corp.'s No. 4 Shelton, SE cor. NE, Section 18-8-5, is a cellar. Gypsy Oil Co. has the rig on the ground for No. 8 Miller, NE cor. SE, Section 18-8-5.

Independent Oil & Gas Co.'s No. 9 Knapp, NW cor. NE, Section 8-9-5, Earlsboro Pool, made 1,044 bbls. from Wilcox sand at 4,408-14 feet. Magnolia Petroleum Co.'s No. 1 Germany, SE cor. NW, Section 30-9-5, was drilled to 4,419 feet and plugged back to 4,212 feet and made 28 bbls. from Simpson sand. Gypsy Oil Co.'s No. 2 Bourassa, NE cor. Section 7-8-5, Maud Pool, is dry and abandoned at 4,454 feet. No. 4 Bourassa, SE cor. NE NE, Section 7-8-5, made 137 bbls. from Hunton lime at 4,103-49 feet.

Pure Oil Co.'s No. 1 Wiley, SE cor. NW, Section 8-8n-5e, has been completed for 1,395 bbls. in Hunton lime at 4,090-4,101 feet. No. 2 Wiley, SW cor. SE NW, Section 8-8-5, made 1,413 bbls. in Hunton lime at 4,128-48 feet. No. 3 Wiley, SW cor. NW, Section 8-8-5, produced 758 bbls. from Hunton lime at 4,096-4,117 feet. Gypsy Oil Co.'s No. 2 Miller, SE cor. Section 18-8-5, made 3,500 bbls. from total depth of 4,109 feet.

Independent Oil & Gas Co.'s No. 2 Harding, NE cor. SE NW, Section 18-8-5, flowed 2,590 bbls. from Misner sand at 4,095-4,130 feet. T. B. Slick's No. 1 Spangler, NW cor. SE NW NW, Section 17-7-2, has been abandoned at 6,098 feet. McCulloch Oil Co.'s No. 4 Bruno, SE cor. NE, Section 25-7-4, St. Louis Pool, swabbed 463 bbls. from Simpson sand at 4,095-4,133 feet. T. B. Slick's No. 2 Smith, NE cor. NW SE, Section 30-7-5, made a 10-bbl. well after plugging back from 4,348 feet to 4,252 feet.

Seminole County

Barnsdall Oil Co. has the cellar dug for No. 2 Jackson, NW cor. NE NE, Section 5-9-6, Earlsboro Pool. Tidal Oil Co.'s No. 4 Nellie, SE cor. Section 12-8-5, Mission Pool, is a cellar. The Texas Company made location for No. 1-A Jefferson, NE cor. SE SE, Section 23-5-7, West Allen area.

Furhman Petroleum Co.'s No. 1 Fay, SE cor. NW SW, Section 27-11-6, is dry and abandoned at 4,773 feet. Gypsy Oil Co.'s No. 13 Sango, NE cor. NW SE, Section 1-9-5, Earlsboro Pool, made 82 bbls. from Wilcox sand at 4,323-49 feet. Barnsdall Oil Co.'s No. 2 Fife, SW cor. NE NW, Section 14-8-5, Maud Pool, has been abandoned at 4,419 feet in Wilcox sand.

Sinclair Oil & Gas Co.'s No. 6 Bellars, SE cor. NW NE, Section 19-8-5, was completed for 716 bbls. in Simpson sand at 4,236-43 feet. W. B. Pine's No. 8 Hoyecha, NW cor. SW SE, Section 26-8-6, Little River Pool, made 405 bbls. in Wilcox sand at 4,812-18 feet. Barnsdall Oil Co.'s No. 1 Barkus, SW cor.

(Continued on Page 128)

NEW WELL IN WRIGHT POOL, KANSAS, EXTENDS PRODUCTION QUARTER MILE

By J. L. Dwyer

There was one new well in the Wright Pool of Sedgwick County, Kansas, which proved a good well, and it extended the production one-quarter mile west. It was the Gypsy Oil Co., Marland Production Co. and the Bu-Vi-Bar Petroleum Co.'s No. 2 Wright, NE cor. SW SE, Section 12-26-1w, and had the regular sand 3,375-83 feet. It flowed 65 bbls. the first hour and 693 bbls. the first 12 hours. The well flowed 1,428 bbls. for the 24 hours ending 7 a. m., Monday, of this week.

An interesting development of the week in the Sedgwick Field is that Hays & Reynolds' No. 1 Roll, on a 5-acre tract in the NE, Section 7-26-1e, has been put on the pump, and is making 690 bbls. This well is making no water. It seems rather unusual to put such a well on the pump rather than on the swab, but when it is considered many of the wells in this area which have been placed on the swab have rapidly showed water, the wisdom of the pumping method seems justified.

At this time there are only a few wells of the pool free from water, the wells around the discovery well in Section 12-26-1w, and the Hays & Reynolds well. Incidentally these wells with the exception of the Hays & Reynolds well are all flowing naturally, while the remainder of the wells in the pool are either swabbing or pumping after being swabbed.

In the north end of the Sedgwick County activity, the Marland Production Co.'s No. 1 Goodrich, in Section 16-25-1e, is making 1,037 bbls. of oil and 90 bbls. of water, most of this production being obtained by the swab.

There was a small well reported in western Greenwood County It was the Prairie Oil & Gas Co. and the LaRobb Oil Co.'s No. 1 Teter, NW cor. SW SW, Section 18-25-9, which had the Bartlesville sand 2,441-60 feet, and was good for 25 bbls. daily after a shot of 45 quarts.

Butler County

Empire Oil & Refining Co. made location for No. 2-A Brandenberger, SW cor. SE NE, Section 22-27-5. No. 2 Linnerson, SW cor. NE SW, Section 34-27-5, has been abandoned at 2,759 feet.

Cowley County

Dutton & Gillespie's No. 1 Boeger, SW cor. SE, Section 21-30-4, is a rig on the ground. Kentucky Nitrogen & Oxygen Co. made location for No. 2 Sillihman, CSL NW NE, Section 13-34-6.

T. B. Slick and others' No. 1 Alspaugh, SW cor. NE, Section 27-31-5, has been abandoned at 3,045 feet. Kentucky Nitrogen & Oxygen Co.'s No. 1 Barnhart, NW cor. SW SE, Section 7-33-7, has been abandoned at 1,037 feet.

Greenwood County

Sheedy and others made location for No. 2 Newman, NE cor. SW SE, Section 32-23-13. Marshall and others' No. 8 Bonnett, SW cor. NW, Section 13-24-12, made 25 bbls. from sand at 1,712-30 feet. Stark and others' No. 1 Scott, NE cor. SE, Section 18-24-12, is a dry hole at 1,788 feet.

Marion County

Frank Moore is building the rig for No. 1 Miller, NE cor. Section 26-19-1. McPherson and others made location for No. 1 Converse, NE cor. NW SE, Section 29-21-2. Howard & Stoddard made location for No. 1 Skiles, SE cor. NW, Section 30-21-3. Frank and others' No. 1 Reed, NW cor. Section 17-19-4, has been completed for 750,000 feet of gas in chat at 2,319-2,405 feet, total depth 2,741 feet.

Sumner County

The Prairie Oil & Gas Co.'s No. 3 McEowen, SW cor. SE SW, Section 34-34-2, made 225 bbls. at 3,482 feet.

WILDCAT OPERATIONS IN KANSAS

Company, farm and location—	Remarks:
BARBER COUNTY	
Allison & Fitzwilliams' No. 1 Morrisse, C NW SE SE Sec. 9-30-12w	Rig.
Barbara Oil Co.'s No. 1 Blunk, C NE NW Sec. 20-34-13w	Drlg. 4,760 ft.
Barbara Oil Co.'s No. 1 Lytle, CNL NE NE, Sec. 12-33-13w	Drlg. 4,010 ft.
Rolland et al's No. 1 Pickens, NE cor. NW NE Sec. 27-30-14w	Shut down 4,223 ft.
BARTON COUNTY	
Everett & Wiley's No. 1 Ward, NW cor. SW Sec. 12-20-13w	Shut down 3,948 ft.
Mid-West Exploration Co.'s No. 1 Karst, SW cor. SW Sec. 11-16-15w	Drlg. 3,375 ft.
BUTLER COUNTY	
LaRobb et al's No. 1 Bronsenger, NE cor. SW Sec. 24-27-3	Rig.
Swartz et al's No. 2 Randall, NW cor. NE NW Sec. 22-24-4	Shut down 2,605 ft.
CHASE COUNTY	
Griener & Fowler's No. 1 Carson, NE cor. NE Sec. 9-21-7	Shut down 3,162 ft.
COWLEY COUNTY	
Roth & Faurot's No. 1 Ridding, SE cor. NW Sec. 31-32-6	Drlg. 3,140 ft.
Shell Pet. Corp.'s No. 1 Galley, NE cor. NW SW Sec. 18-35-3	Drlg. 2,620 ft.
Pyle & Sutter's No. 1 Lindstrom, SW cor. NE Sec. 9-35-4	Drlg. 3,070 ft.
Empire-Marland-Twin States' No. 1 Feaster, NW cor. NE Sec. 36-32-5	Pump. 35 bbls. oil and 10 bbls. wtr. daily from 3,165 ft.
Crow & White's No. 1 Powers, C NW NE Sec. 9-32-5	Sand 714-734 ft.; 1,000,000 ft. gas.
J. B. Markey's No. 1 Tatum, SE cor. SW Sec. 11-31-6	Shut down 520 ft.
Wakefield & Osborne's No. 1 Osborne, NW cor. NE Sec. 18-30-5	Rig.
ELLIS COUNTY	
Rush Oil Co.'s No. 1 Gatewood, NW cor. NW Sec. 4-15-20w	Shut down 1,100 ft.
Transcontinental Oil Co.'s No. 1 Boetcher, NW cor. SE SW Sec. 21-13-19w	Drlg. 3,915 ft.
Finney & Weiner's No. 1 Freeman, SE cor. SW Sec. 24-15-20w	Spudded and shut down.
Labette Oil Co.'s No. 1 Urban, NE cor. NW NW Sec. 19-15-16w	H.F.W. 3,618 ft.
Atlantic Oil Prod. Co.-D. B. Mason's No. 1 Gorham estate, C SE SE Sec. 35-15-16w	S.D. 2,462 ft.
Derby Oil Co.-Empire Oil & Ref. Co.'s No. 1 Krause, NW cor. SW SW Sec. 17-14-19w	Cementing core 3,329 ft.
Phillips Pet. Co.'s No. 1 Brull, C NW Sec. 34-14-17w	Drlg. 3,090 ft.
Moncrief et al's No. 1 Johnson, SW cor. NE Sec. 9-13-19w	Rig.
Caracas Group No. 1 Company's No. 1 Gestner, SE cor. SW NE Sec. 13-13-18w	Drlg. 1,820 ft.
Empire Oil & Ref. Co.'s No. 1 Wann, NE cor. NE Sec. 31-12-19w	Underreaming 3,515 ft.
Marland Oil Co.'s No. 1 Vine, SW cor. SW SE Sec. 27-11-19w	Drlg. 4,075 ft.
Davis & Hazlett's No. 1 Wieland, NE cor. NE Sec. 1-13-16w	Drlg. 1,420 ft.
EDWARDS COUNTY	
Amerada & Wilcox's No. 1 Teansil, C NW SW Sec. 32-25-19w	Underreaming 4,285 ft.
British American Oil Co.'s No. 1 McCarty, NE cor. NW Sec. 31-25-17w	Drlg. 2,775 ft.
GEARY COUNTY	
Wright et al's No. 1 Younker, NW cor. NE Sec. 17-11-5	Shut down 1,200 ft.
GRAHAM COUNTY	
Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w	Shut down 2,450 ft.

(Continued on Page 98)

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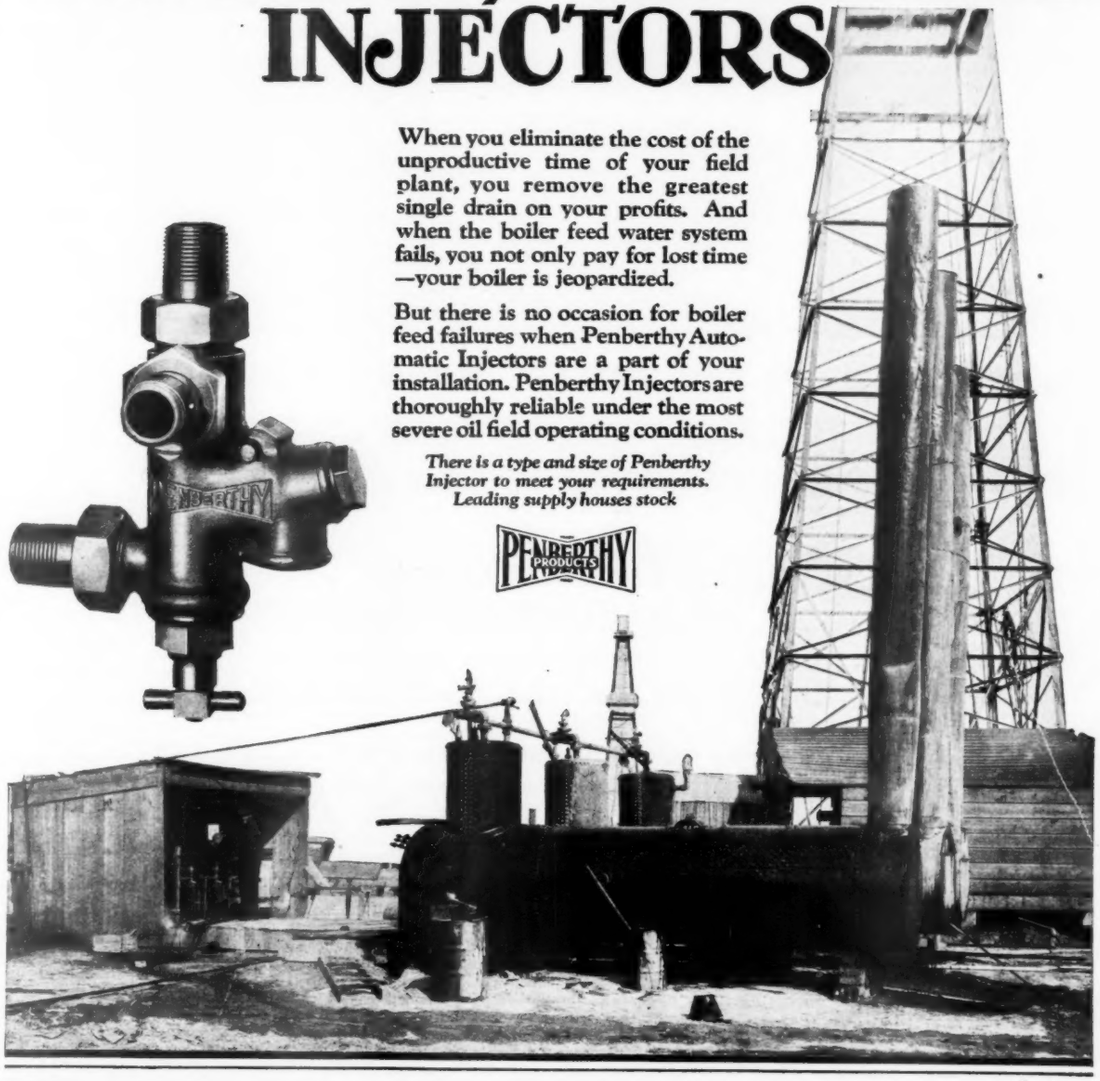

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Joe Bruner Pool Gets Two Big Wells

Humble's Completion Flows 2,910 Bbls. in 14 Hours, While Shell Has 3,000-Bbl. Producer. Refugio Field Interesting

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Feb. 18.—Production in the Joe Bruner (Salt Flats) Pool in Caldwell County went above 25,000 bbls. daily last week when two good wells were brought in in the upper part of the field. Humble Oil & Refining Co.'s No. 1-A Moses & Baggett came in in the Edwards lime and gauged 2,910 bbls. the first 14 hours and the Shell Petroleum Co.'s No. 3 Floyd Tiller also in the north end of the field came in for about 3,000 bbls. a day. Neither well had to be bailed. They are two of the biggest wells the field has produced thus far. In the earlier days of the field The Texas Company's No. 2 Merriweather came in for big production of around 3,000 bbls. a day but never reached the Edwards lime. Humble's No. 1-A Moses & Baggett is the biggest the field has brought in.

Sixty-nine wells in the field during the month of January produced a total of 490,000 bbls. of oil. Some of these wells were not on production for the full month. Production on February 11 from 82 wells was 19,573 bbls. The Humble Oil & Refining Co.'s No. 1-A Moses & Baggett came in the next day and the Shell well followed that a couple of days later bringing the production above 25,000 bbls.

The significance of these two wells is that they are in the northeast end of the field though the two wells on the Johnson lease drilled by the Humble Oil & Refining Co. are about a mile farther northeast than they are. With this big flush production in that end of the field and very few locations drilled in the 2-mile stretch between the production on the southwest and the Johnson wells on the northeast there is a good chance for very material increase in the production of the field within the next few weeks by the drilling of the additional locations.

The Humble Oil & Refining Co. has a location on the Gray lease northeast of its two wells on the Johnson tract in the James Hinds Survey. The two Johnson wells, neither of which is large, are at present the northeast limit of production. Northeast of the Gray lease of the Humble there is still another location by Al Buchanan and associates (Victor Oil Co.) nearly 2 miles northeast of the two Johnson wells of the Humble Oil & Refining Co. and just about on a line with the trend of the field. There are no dry holes or other indications to discourage the hope that the field extends that far.

Refugio Field

The Refugio Field early in the week added a feature to the news of Southwest Texas when Mission Drilling Co.'s No. 1 Nellie B. Cummins in the southeast part of the field and a good 3,000 feet southeast of nearest gas production came in producing from the 3,700-foot sand and making about 750 bbls. of oil a day with apparently no water. Taking the axis of the field as a line from the oil well at the north end of the field to that in the south end this well on the Cummins tract is a mile to the southeast. It is also the best oil well thus far brought in. There is no oil production in the middle of the field and no gas wells in the middle of the field to the 3,700-foot sand.

Another feature of the Refugio Field the past week was the Houston Gulf Gas Co.'s No. 4 O'Brien at the north end of the field. At 2,420 feet it blew in gas, damaged the derrick and blew the rotary table to one corner of the platform. It was later closed in. The feature about it is that the gas from sands at that depth in the older part of the field to the south has been exhausted and other wells drilled at the north end of the field seem to have failed to find that sand heretofore. The well was to be a 3,700-foot test and the gas at 2,420 feet was unlooked for.

Agua Dulce Field

In western Nueces County around the Agua Dulce area the week was characterized by a number of new locations in wildcat areas and setting casing on two new wells in the field which should be in the early part of this week. One of them, the Agua Dulce Oil & Gas Co.'s No. 1 Wolcott ran high and got the sand at 1,971 feet which is about the same depth as its No. 1 Sanders, the farthest south well. No. 1 Wolcott is the farthest north. R. & G. Corp.'s No. 1 Yakey on the east side of the field got the sand at 2,021 feet which is about regular with the discovery well. Many believe the sand at 1,971 feet is a different and shallower sand. It seems to have a different appearance.

Laredo District

There were some nice producers completed in the Laredo district last week but the only important extension was the Humble Oil & Refining Co.-Reiter-Foster's No. 13 Kohler at the northeast end of the new gas area the Humble has found in Duval County on the Kohler ranch, 8 miles north and a trifle east of the Cole gas field. Last week No. 13 Kohler at the northeast end and No. 12 at the southwest end of the area were each reported as showing for a gas well on drill stem tests. This week No. 13 is a 15,000,000-foot gas well at 1,747 feet and the other is showing some gas but also some salt water and is not yet a well.

In the territory north of the Magnolia-Cole Pool opened up by John J. O'Hern, two gas wells were brought in, one by the Houston Oil Co. for 35,000,000 feet and one by the Union Exploration Co. (Houston Gulf Gas) for 40,000,000 feet. The Houston Oil Co.'s well, No. 1-G Benavides is in the southeast corner of Survey No. 701. It added gas production but not much else. The depth is 2,304 feet. The Union Exploration Co.'s No. 1 Benavides in the center of the north half of Survey 694 at 2,320-22 feet, has gas production at the same depth a half mile northwest (O'Hern's discovery well) and a half mile southeast in the Houston Gulf Gas Co.'s No. 1 Benavides, and in the Houston Oil Co.'s No. 1-G Benavides in the southeast corner of Survey 701, three-quarters of a mile southwest, so it resulted in no extensions but proved up acreage.

Two interesting features of the Laredo district the past week were O. W. Killam's No. 5 Bruni in Block 26, Survey 8, of the Arispe grant, a little southeast of the town of Bruniville on the Texas Mexican Railroad, a 25,000,000-foot gas well in sand at 2,317-26 feet with 700 pounds rock pressure, and O. W. Killam's No. 1 Bruni in Block 1, Survey 5, of the Arispe grant nearer the town of Bruniville which at 516 feet gauges 2,000,000 feet of gas. This area is west of the Cole gas field, in which gas production is around 1,800 feet, and the Magnolia-Cole Pool is some distance northwest of it. There are a number of good gas wells scattered about Bruniville in the sand at around 2,300 feet but widely scattered.

The shallow sand in No. 1 Bruni was not unknown to the industry in the Laredo territory. In drilling a deeper well this sand blew out a year or so ago in a well drilled by Mr. Killam and caused quite a little trouble in getting it mudded off and controlled. The present well, however, was being drilled as a water well rather than to get production.

Randado Pool

In the Randado Pool, the Randado Oil Corp. completed Nos. 31 and 32 Palacious, the first for 115 bbls. and the other for 100 bbls. of oil, the first topping the sand at 1,271 feet and the other at 1,283 feet. These wells are developing acreage along the east side of the pool.

COMPLETIONS

Caldwell County

Humble Oil & Refining Co.'s No. 2 J. J. Davis, A. Floyd Survey, has been completed at 2,705 feet initial production 350 bbls. on the pump. Its No. 2 Mrs. T. B. Johnson, James Hinds Survey, completed at 2,680 feet making 125 bbls. daily. Its No. 1 W. O. Allen has been completed at 2,700 feet making 50 bbls. on the pump; No. 3 J. B. Tiller, completed at 2,718 feet, is making 175 bbls. initial, and its No. 1-A Moses & Baggett which was completed at 2,672 feet flowed 2,910 bbls. in 14 hours.

Gulf Production Co.'s No. 1 Jim Smith has been brought in for 100 bbls. at 2,717 feet, and its Nos. 7 and 8 W. L. Smith and No. 7 Conally have been completed.

J. S. Abercrombie Oil Co.'s No. 5 Lida Moses, Gerren Hinds Survey, was completed at 2,725 feet for 250 bbls.

Golden West Oil Co.'s No. 2 Cora Malone, A. Floyd Survey, was brought in at 2,725 feet making 75 bbls. on the pump.

Linderman-Atlantic's No. 2-A W. F. Davis was completed at 2,768 feet making 100 bbls. on the pump.

Shell Petroleum Corp.'s No. 1 Floyd Tiller, Gerren Hinds Survey, was brought in at 2,707 feet for 300 bbls.

The Texas Company's No. 1 Lee Moses, Gerren Hinds Survey, has been completed at 2,641 feet making 25 bbls. Its No. 2-B Branyon, John R. Miller Survey, was completed at 2,356 feet making 50 bbls.

Duval County

Humble Oil & Refining Co.-Reiter-Foster's No. 13 Kohler, Survey 163, Humble Field, completed at 1,747 feet making 15,000,000 feet of gas daily.

Jim Hogg County

Randado Oil Corp.'s No. 31 Palacious, Survey 291, Block 15, completed at 1,279 feet making 130 bbls. Its No. 32 Palacious, Survey 291, Block 3, has been completed at 1,305 feet making 65 bbls.

Refugio County

Mission Drilling Co.'s No. 1 Nellie B. Cummins, completed at 3,800 feet, came in flowing around 750 bbls. daily through a seven-eighths-inch choke and a 1-inch choke.

Webb County

O. W. Killam's No. 5 Bruni, Survey 8, Block 26, has been completed at 2,326 feet making 25,000,000 feet of gas with 700 pounds rock pressure. His No. 1 Bruni, Survey 5, Block 1, drilling for water, blew in at 516 feet for 2,000,000 feet of gas daily with 260 pounds rock pressure.

Union Exploration Co.'s No. 1 Benavides, Survey 694, Block 3, completed at

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NEW WILDCAT PLAY STARTING IN WESTERN NUECES COUNTY

By B. D. Stevenson

SAN ANTONIO, Tex., Feb. 18.—There is a new wildcat play starting around the Agua Dulce section in western Nueces County and a number of tests, all wildcat, will be drilled. Magnolia Petroleum Co. started in last December and has leased about 20,000 acres in western Nueces and eastern Jim Wells Counties. Humble and Tidal Oil have each been leasing in that general area lately. Wolcott Petroleum Co. of Laredo some weeks ago leased a block west of the Agua Dulce Pool in eastern Jim Wells County and R. & G. Corp. have timbers on the ground and will drill on the block, starting as soon as it can rig up. It will be a 3,000-foot test. North of the Agua Dulce Pool in Nueces County, Pearson interests have a couple of blocks and R. & G. Corp. a couple of blocks that will be drilled soon and south of the Agua Dulce Pool Southern Crude Oil has spudded in a test on the Cliff farm. All of these tests are from a few to several miles away from the pool and on structures not expected to connect up with the Agua Dulce Pool.

Bee County Well

In northern Bee County, east of Pettus, where H. E. Hewitt some weeks ago got a little gas at 2,837 feet on the G. A. Ray farm, the test has developed into a well. When the sand was first found it blew considerable mud. When shut in for 24 hours it would build up about 500 pounds rock pressure and when opened would make a good volume of gas through 2½-inch tubing for 30 minutes or so. It was early in November that the wildcat ran into the gas. Now it has a rock pressure closed in of 1,100 pounds and when opened drops to about 900 pounds and remains there. When word of the new gas find got out last November it started a big leasing campaign across northern Bee County and east into Goliad and west into Live Oak County as far as Three Rivers.

Information from the new producing spot in Gonzales County, 10 miles southeast of the Joe Bruner Field in Caldwell is not so good. Cranfill & Reynolds, 10 feet higher on the surface in their No. 1 Webb than the Empire Gas & Fuel Co. discovery well, No. 1 Norwood, which had a total depth of 3,779 feet, is down past 3,850 feet and no pay yet. No. 1 Webb is about 600 feet south of No. 1 Norwood. It topped the chalk at 3,802 feet compared with 3,770 feet (corrected depth to top of chalk) in No. 1 Norwood. No. 1 Webb is dry thus far. Cen-Tex is building a line to the railroad and will take the production from the Empire Gas & Fuel Co.'s No. 1 Norwood and ship it to the Corsicana refinery at 80 cents a barrel.

There is a little gas showing in W. D. Flynn's No. 1 Wilhausen at 5,012 feet in southern Gonzales County.

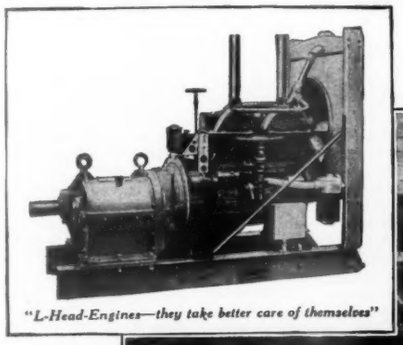
Starr County

The Texas Company's No. 1 Ofelia Resendez, Porcion 69, Block 174, located 150 feet to south and east lines, is drilling at 3,720 feet. Crays & McCardle's No. 1 Hicks & Hicks, Perdernal grant, 150 feet to northeast lines and 200 feet to southeast lines, is drilling at 150 feet.

Duval County

National Oil Co. is using magnetometer to check location of No. 2 Ball in Block 5 of Ball ranch. Magnolia Petroleum Co.'s No. 2-A Hahl, Survey 51, located 150 feet to east line and south line, is

(Continued on Page 127)



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Cotton Valley Deep Gas Sand Extended

Same Horizon Found in Completion Half Mile East. Palmer Corp.'s Well Holding Up Remarkably Well. Production Stationary

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Feb. 18.—A quarter of a mile east extension of the deep gas producing horizon in Cotton Valley saved the week's developments in proven territory in this division from being a blank so far as anything of particular moment is concerned. The well which extended the Trinity in the Webster Parish Field was Cotton Valley Syndicate's No. 19 Hope in the SW NW Section 24-21-10, which gauged 4,000,000 feet of gas at 4,700 feet, the nearest producer in this horizon to it being Louisiana Oil Refining Corp.'s No. 1 Davis in the SE NE Section 23-21-10, completed several months ago making 17,000,000 feet of gas at the same depth. This gives the deep-sand area uncovered by Ohio Oil Co. with No. 38 Bodcaw in Section 15-21-10 last March, an extreme width of 2 miles and the same length north and south.

In connection with this completion it is interesting to note the latest gauge of the Palmer Corp.'s No. 4 Tillman in the NW cor. NE NE Section 28-21-10, with one exception the furthest south well in the deep stuff. Completed January 3, it gauged 22,000,000 feet, total depth 4,625 feet. Initial rock pressure was 1,650 pounds. It has been putting 8,000,000 feet into the lines daily ever since and when gauged a few days ago both rock pressure and volume were identical with those of the first gauge. The interesting feature of this performance is that none of the other deep gassers has been able to register more than 600 to 700 pounds initial, and have declined rather rapidly in both volume and pressure when pulled to any extent.

One other operation in Cotton Valley, Ohio Oil Co.'s No. 2 Hodges, C NW SW Section 23-21-10, was abandoned without drilling. Shongaloo district, northeast of Cotton Valley, was the location of the other completion in Webster Parish. Jones and others' No. 1 Elkins, Section 33-23-9, being dry and abandoned at 2,690 feet after testing 1,000,000 feet of gas at 2,681 feet last October. In the Sarepta district, Magnolia Petroleum Co. is expecting to get another producer similar to the two others recently brought in. No. 1 Denman in Section 1-22-11 has 7 feet of sand, total depth 2,710 feet, and has set 8¼-inch casing at 2,702 feet for a test. The company's No. 6 Marshall in Section 21-21-10, Cotton Valley, will be another test for the deep Trinity gas horizon. It set 403 feet of 16-inch as surface string last week.

May Make Deeper Producer

Dixie Oil Co.'s No. 91 Dillon, Section 14-21-15, Pine Island district of Caddo Parish, deepened from 2,702 feet where it was a 2,500-bbl. producer a year ago, looks like another well in the 3,600-foot zone. It is standing 900 feet in oil with 50 feet of water at the bottom and will be put on the pump. W. D. Chew put No. 8 fee, Section 33-21-16, Oil City district, on the pump with an initial 20 bbls. from 1,850 feet.

Magnolia Petroleum Co.'s freak well in Richland Parish, No. 2 Sartor, in Section 16-16-6, almost the heart of the field, is waiting orders at 2,633 feet, 180 feet below the average depth of Richland producers, after making its fifth barren test and probably will be abandoned. United Carbon Co.'s No. 3 fee, Section 6-19-5, Ouachita Parish, gauged 16,000,000 feet, total depth 2,139 feet.

EAST TEXAS

Five of seven completions in East Texas totaled 12,880,000 feet of gas. All are in Panola County. One of the other two was a dry hole and the last, in Harrison County, had rigged up to deepen but was not drilled further, Lyons and others deciding to leave No. 2-A Bryson in the E. Pollock Survey as it was when they got it. Their No. 3 Furrh in the James Short Survey, however, the second hole on the same permit, gauged 1,080,000 feet at 2,373 feet.

In Panola County, Eureka Natural Gas Co. completed No. 1 Gulley in the James Matthews Survey, its second well, making 2,000,000 feet in the chalk rock at 1,863 feet. It is the first well to produce commercial gas in the Annona chalk in this division, all other chalk rock wells having been oil producers in Caddo. S. H. Gardner and others' No. 4 Brumble in the B. C. Jordan Survey was abandoned as a dry hole at 2,712 feet. Magnolia Petroleum Co.'s No. 2 T. C. Adams in the Ezekial Jones Survey gauged 1,800,000 feet of gas from 2 feet of sand, total depth 1,017 feet, and No. 13 Steele, an old well in the same survey, deepened from 996 feet, gauged 5,000,000 feet at 1,060 pounds, total depth 2,672 feet. The Texas Company's No. 8-A T. C. Adams, also in the B. C. Jordan Survey, made 3,000,000 feet from 6 feet of sand, total depth 961 feet.

Champagnolle was conspicuous this week by its absence from the list of completions. However, Ohio Oil Co.'s No. 1 Nash, Account 3, in Section 6-17-13, probably will be listed next week as it is waiting for standard rig with 1,500 feet of oil in the hole from 13 feet of sand, total depth 3,065 feet. Lion Oil Refining Co. put No. 5 Rowland, Section 15-17-14, on the air two weeks ago and got 3,000 bbls. of salt water from 2,858 feet. It had made 2,000 bbls. of water and 100 of oil from 3,207 feet, plugged back and perforated at 2,845 feet, and now will plug back and perforate again. No. 5 Union Sawmill in Section 7-17-13, the deepest hole yet drilled in the entire Champagnolle area, is drilling red gumbo again at 4,384 feet. Hooser and others' No. 4 Slade in Section 3-17-14, bailed dry with a show of oil and salt water at 3,308 feet after setting one joint of 5½-inch at 3,228 feet and 95 feet of 4-inch liner with one joint of perforated at the bottom at 3,308 feet. It was dry at 3,235-39 feet and filled up with salt water after deepening to 3,254 feet. It is an edge well on the extreme north of the old deep sand area and offsets a producer on the south and a dry hole on the east.

Shell Petroleum Corp. perforated casing in No. 1 Williams, Section 34-15-15, Ouachita County, and is waiting for standard rig to pump from 1,972 feet with 200 feet of fluid in the hole, as the latest test in revamping old producers in the Graves (second) sand in Smackover, where the shallow pay is getting considerable of a play in this manner. The well was a 2,500-bbl. producer when completed in June, 1923, at 2,381 feet.

Gulf Refining Co.'s No. 2 Gaddy, Section 30-17-14, in the old El Dorado East Field and 2½ miles southwest of Champagnolle production, made a drill stem test at 2,850-09 feet and got a show of 50,000,000 feet of gas and will set casing for a test. It had 1,900 feet of salt water in the hole from sand at 2,604-11 feet a week ago. No. 1 Woodley, in Section 6-18-14, drilling deeper from 3,143 feet where it was a salt water hole on completion by T. J. Woodley as No. 2 Townsend, is drilling at 3,360 feet. It tested salt water at 3,143 feet in the top of the red beds.

Smitherman & McDonald, drilling No. 1 Miller, Section 17-23-8, Haynesville, as a community test in which Gulf Refining Co. has a half interest, had a little gas at 4,540 feet, cored in the red beds at 4,556 feet and is drilling. The only true sand it has had since leaving the Haynesville pay was at 4,502-09 feet where it was dry. Meanwhile, Gulf Refining Co. is reported conducting extensive torsion balance surveys covering most of Claiborne Parish.

Production Stationary

Daily average runs from the field for the division remained practically stationary with those of last week, the difference being an increase of 40 bbls. for the division as a whole and 430 bbls. for the north Louisiana pools. Arkansas runs dropped 390 bbls., the only district showing an increase being the Irma Pool in Nevada County, which shipped 130 bbls. per day more than moved out last week. Daily average runs from the several districts were:

Louisiana

Caddo, light	8,830
Caddo, heavy	3,870
Homer	4,005
Haynesville	5,510
DeSoto-Red River	4,050
Elm Grove	615
Bellevue	725
Cotton Valley	3,000
Urania	5,850
Pleasant Hill	465
Sarepta-Cartersville	225
Total	36,145

Arkansas

El Dorado	4,840
Smackover, light	6,620
Smackover, heavy	51,045
Stephens	1,030
Nevada County	1,440
Lisbon	1,500
Champagnolle	10,265
Bradley	100
Total	76,840
Total both states	112,985
Total last week	112,945
Increase	40

NORTH LOUISIANA

Caddo Parish

Greenwood—Loraine Syndicate is bailing 8-inch casing cemented at 2,740 feet on No. 1-D Bryson, Section 18-17-16.

Oil City—Snake Creek Oil Co. is drilling No. 1 Levee Board, Section 9-21-16, at 570 feet.

Pine Island—Dixie Oil Co.'s No. 91 Dillon, Section 14-21-15, is standing 900 feet in oil and 50 feet in water, total depth 3,693 feet. C. H. French is bailing to test 6-inch cemented at 1,339 feet on No. 4 Muslow, Section 31-21-15, total depth 1,689 feet.

Claiborne Parish

Haynesville—Smitherman & McDonald's No. 1 Miller, Section 17-23-8, tested salt water at 4,479 feet, dry at 4,509 and is arranging to bail again at 4,546 feet.

Monroe District

Morehouse Parish—Natural Gas Producing Co. of Louisiana has rig up for No. 23 Crossett in Section 26-21-4. Southern Carbon Co.'s No. 52 fee, Section 15-20-4, cemented 6⅝-inch at 2,093 feet and No. 8 Tensas, Section 2-20-4, cemented 6-inch at 2,122 feet; No. 9 Tensas is a location 660 feet south and east of the center of Section 2-20-4. Stovall Drilling Co.'s No. 1 Etheridge, Section 22-20-4, is drilling at 1,940 feet.

Ouachita Parish—Hatcher & Evans cemented 6-inch at 2,145 feet on No. 8

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LEASE BUYERS ACTIVE IN ARKANSAS, LOUISIANA AND MISSISSIPPI AREAS

By D. H. Bancroft

SHREVEPORT, La., Feb. 18.—Wildcat tests in Arkansas split 50-50 last week when McDonald Brothers' No. 1 Wilson, Section 25-15-18 Ouachita County, showed for a small pumper on bailing, and The Texas Company's No. 1 Keifer, in Section 11-18-4, Ashley County got salt water. First test of the McDonald well was at 2,818 feet where it developed a small show of brown looking oil when bailed down to 300 feet of the bottom. Drilled 10 feet deeper it made a better show when bailed down 1,800 feet after standing for 6 hours. A sample of the oil taken from the pit and shaken out showed 24.4 gravity 10 per cent gasoline content and 15 per cent kerosene. There was only a very faint show of gas. The Texas Company's well topped the gas rock at 2,801 feet, bailed and tested salt water from 2,802-9 feet. It is checking about 40 feet higher than its No. 1 Gay in Section 32-16-4, Ashley County, abandoned at 3,187 feet as a dry hole last September.

Louisiana Oil Refining Corp. made location 361 feet north and 347 west SE cor. Section 15-15-19 for No. 1 Manley, the 4,500-foot test it is to drill on its block just south of the town of Stephens in Ouachita County, and has derrick up.

Ohio Oil Co., whose No. 2 Southern Lumber Co., in Section 19-16-9, was abandoned as a dry hole at 3,217 feet two weeks ago, is reported assembling another block 2 miles northeast of this well centering around Section 5-16-9, with plans for a test, probably in this section. The company already has a block northwest of this well.

Assembles Block for Test

H. L. Hunt has completed a block of approximately 3,000 acres in Sections 36-18-16; 6, 7, 18-19-15; 1, 11, 12, 13-19-16 south of El Dorado. They are all five year commercial leases but Hunt will make location soon, probably in 12-19-16, for a 3,500-foot well. Z. R. Frazier has derrick up for No. 1 Laney in the NW cor. NE Section 30-19-17 on a block of 3,500 acres scattered in Sections 18, 19, 20, 28 to 32 inclusive in Township 19 Range 16 and 13, 24, 25, 36-19-17, the well to go 3,500 feet.

As the result of the showing in Davidson and others' No. 1 John in the W. H. Wooley Survey of Panola County, Texas, which may prove an extension of the Bethany Gas Field, D. M. Lide and R. E. Davidson have leased 3,000 acres centering around Sections 29 and 30-15-16 Caddo Parish, about 8 miles south of the town of Bethany and east of the Davidson well. In the extreme northwestern corner of the parish, Humble Oil & Refining Co. is renewing the leases on its 2,000 acres southwest of Rhodessa in Township 23-16 and including a few tracts across the line in Texas. This block was acquired three years ago from the Ohio Oil Co. which drilled two or three deep tests, and the leases, straight commercial with no drilling obligations, are being renewed for a similar period.

Homer Miller and others have completed a block in Township 21 and 22 Range 3 and 4w, Union Parish and one of the major companies is reported going over it with torsion balance with the view of taking part or all of it. A. C. Cavender has blocked 10,000 acres centering around Section 34-22-3w and is trying to turn the block, taken on five-

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Another Good Well on Old Hackberry

Second Wildcat Completed on This Dome, With Initial Flow of 800 Bbls. of Pipe Line Oil, Features Week in Gulf Coast Fields

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Feb. 18.—Opening of the first commercial production on the "old" Hackberry Dome, Cameron Parish, early in December after more than 20 years of wildcatting was followed the past week by the completion of the second well, better than the first, and the showing for a well in another wildcat in an entirely different sector of the dome. These wells occasioned by an active drilling development which is under way on the south side of that dome, the completion of another good producer at Clay Creek, Washington County, and the increase in operations at Raccoon Bend, Austin County, where three additional wells are expected in, featured Gulf Coast Field work during the week.

Drilling operations in each of these three districts now are among the most active in the entire Gulf Coast. The activity at Raccoon Bend is of particular interest in view of the consistent substantial extensions in production being made there. Gulf Coast operations also were marked during the week by the completion of fair wells around some of the older domes, principally Spindletop and Pierce Junction.

On the "old" Hackberry Dome, Sutton, Seiss & Green's No. 1 Sonnier, on the south flank, and Rycade Oil Corp.'s No. 1 Gulf Land, on the extreme west flank, furnished the most important news in wildcat development. The former well, the second commercial producer anywhere on the dome, came in with an initial flow of between 800 and 900 bbls. of pipe line oil daily on a half-inch choke. The well late in the week was holding up its total flow and showing only a small percentage of water. Production is from a sand at 3,141-57 feet.

Four New Tests Starting

This well is approximately 1,500 feet east of the discovery well, Cameron Oil Co. and Rycade Oil Corp.'s No. 2 Duhon, which flowed 300 bbls. initially from sand at 3,142-51 feet. Four new tests already are starting up on offset acreage to these wells.

On the extreme west side, Rycade Oil Co.'s No. 1 Gulf Land probably will make a pumper from a sand at 4,345 feet. The well first started flowing by heads estimated as good for 100 bbls. daily of fluid of which about 50 per cent was oil and a like amount wash water. On bailing the wash water, however, the well would not flow and Monday it was being rigged up to pump.

Two tests on the dome were abandoned in heaving shale. One of these, Noble Oil & Gas Co.'s No. 3 Elender, quit at 3,850 feet, was a wildcat on the east side. Yount Lee Oil Co.'s No. 1 Perkins was on the south in the vicinity of the two producers. It was abandoned at 4,450 feet.

In the Clay Creek district of Washington County, where Sun Oil Co. is developing what promises to become a major coastal field, that company's No. 1 C. H. Marcus came in flowing at the rate of 980 bbls. of pipe line oil through a half-inch choke from a sand at a total depth of 1,259 feet. This is the fourth producer completed, two of which have had initial production of more than 4,000 bbls. daily each. The field, however, was defined to some extent to the southeast and southwest by the abandonment of No. 1 Einman and No. 1 L. Marcus in the last week, the former being approximately 1,400 feet to the southwest. Both were deep tests. Production in the field has been shallow so far.

Raccoon-Bend Wells

Raccoon Bend, now one of the most active developments in the entire Gulf Coast, is expected to have three additional wells in a few days, although one, No. 2 Hardy, is delayed in testing by losing the screen, necessitating a fishing job. Each of these wells is in the deep sand at 3,200 and 3,300 feet. Twelve rigs are running at Raccoon Bend, which is controlled by the Humble Oil & Refining Co. and the Valley Oil Corp. jointly.

That Barbers Hill also is to take a more important place was indicated with the continued holding up of Yount Lee Oil Co.'s No. 1 Chambers, flowing more than 4,000 bbls. of oil from the deep sand on the southwest flank. Six other deep tests are drilling or will be early this week on this side in the vicinity of this producer completed late in January. Two additional deep tests on the southeast side, where Bennett Petroleum Co.'s No. 1 Smith established an unusually good record for Barbers Hill, were looking good. Both were ready to test sands showing heavily of oil.

Completions added more than 7,300 bbls. initial production to coastal fields. At Pierce Junction Gulf Production Co.'s No. 27 Taylor came in flowing 1,000 bbls. of 24.7 gravity oil through a choke from sand at 3,759 feet. Gulf Production Co. also got two more wells at Blue Ridge, No. 6 Invincible flowing 1,200 bbls. at 3,566 feet, and No. 14 Luscher, 400 bbls. at 3,501 feet.

Yount Lee Oil Co.'s No. 92 McFaddin at Spindletop, on the south side, came in flowing 1,200 bbls. daily at 3,378 feet. This company's No. 78 Gladys City came in flowing 1,200 bbls. at 2,525 feet, while No. 37 Gladys City flowed initially at the rate of 720 bbls. at 3,125 feet. No. 77 Gladys City was completed for 100 bbls. daily at 3,524 feet.

Other completions were: Rio Bravo Oil Co.'s No. 9-A Settegast, Pierce Junction, pumping 180 bbls.; Gulf Production Co.'s No. 68 Phoenix, Hull, pumping 200 bbls., 20 per cent oil, 3,254 feet; Humble Oil & Refining Co.'s No. 3 Hooks-Spell, Hull, flowing 200 bbls., 3,559 feet; Sun Oil Co.'s No. 33 Mitchell, South Liberty, shallow, pumping 250 bbls.; and Lyne Oil Co.'s No. 11 Hesse, 5 bbls. net, 253 feet.

Daily Average Production

Daily average production in Gulf Coast and Southwest Texas Fields reflected very little change during the week, with a slight decrease being noted in the Gulf Coast and a slight gain in Southwest Texas. Figures for the week ending February 16 are:

GULF COAST
Texas

Allen Dome	10
Barbers Hill	6,200
Batson	1,347
Big Creek	4,137
Blue Ridge	4,319
Brenham	150
Boling	2,044
Damon Mound	650
DeWalt	7,433
Fannette	870
Gay Hill	500
Goose Creek	6,842
High Island	1,299
Hull	10,085
Humble	4,829
Jasper	10
Markham	435
Nash Dome	620
North Dayton	490
Orange	2,985
Orchard	69
Pierce Junction	11,370
Raccoon Bend	2,012
Saratoga	951
Sour Lake	2,923
South Liberty-South Dayton	6,705
Spindletop	34,098
West Columbia	7,202
Total	120,585
Total last week	121,576
Difference	991

South Louisiana

Anse La Butte	41
Bayou Bouillon	450
Edgerly	798
Evangeline	778
Hackberry	5,645
Lockport	4,711
Sorrento	634
Starks	736
Sulphur	2,100
Sweet Lake	525
Vinton	4,137
Welsh	30
Total	20,585
Total last week	21,073
Difference	488
Total Gulf Coast	141,170
Total last week	142,649
Decrease	1,479

Southwest Texas

Dale	547
Bruner	19,002
Gonzales	264
Kingsville	287
Larremore	229
Luling*	11,944
Lytton Springs	1,074
McMullen County	45
Medina County	25
Mirando	12,938
Refugio	1,397
Yoast	1,518
Somerset	1,904
Total	51,174
Total last week	50,262
Difference	912

*Includes: Caldwell County, 7,639 bbls.; Guadalupe County, 4,305 bbls.

Barbers Hill—Chambers County

Humphreys Corp.'s No. 1 Cornelia Barber, southeast flank, has drilled out plug cemented at 4,949 feet and will test an oil sand at a total depth of 4,996 feet. This company's No. 6-B Kirby also is in an oil sand at 5,761-5.808 feet and has set 4½-inch casing to test. Bennett Petroleum Co.'s No. 2 Kirby is coring sandy shale at 5,687 feet. The latter's No. 1 Means is drilling sand and lime at 3,480 feet. Joe Bashara has repaired the derrick and rig on his No. 1 Tarbutton and is ready to try to fish the drill stem stuck in the hole. Rexall Oil Co.'s No. 1 Cockburn is drilling gumbo at 1,743 feet.

On the southwest flank, Yount Lee Oil Co.'s No. 2 Chambers is drilling sand and shale at 2,600 feet. No. 3 Chambers is drilling gumbo at 1,104 feet. No. 3 Richardson is fishing stuck drill stem, bottom of the hole being in sand and lime at 2,217 feet. Gulf Production Co. is rigging up for Nos. 1 and 2 Fisher fee, offsetting Yount Lee Oil Co.'s tract and Sun Oil Co., is rigging up for No. 1 Chambers.

Bennett Petroleum Co.'s No. 1 Barber, north side of the dome, has spudded in.

Boling—Wharton and Fort Bend

Gulf Production Co.'s No. 5 Bay, wildcat on the northeast flank of the dome, bailed salt water in testing sand at 4,043-75 feet after pulling screen, is drilling deeper in sand and shale at 4,147 feet. South Texas Petroleum Co.'s No. 1 Hyde-Fotjeck in the same district also tested salt water in sand at 3,925 feet and is pulling screen to deepen. The Texas Company's No. 1-A Dipple, furthest north wildcat, is drilling hard sand and lime at 3,486 feet. No. 1-B Dipple is drilling gumbo and lime at 2,530 feet. The Texas Company's No. 1 Pleasant, which has been standing rigged, is to be moved to a new location.

On the southeast flank, Sun Oil Co.'s No. 4 E. C. Farmer is of particular interest. It has casing cemented at 3,744 feet to test an oil sand at a total depth of 3,892 feet. The Texas Company's No. 2 E. C. Farmer has spudded in. Sun's No. 2 Rogers is drilling gumbo at 3,617 feet. Scott & Peck's No. 1 Armstrong is drilling shale at 3,910 feet.

Vacuum Oil Co.'s No. 1 Taylor failed to show anything when testing sand at 2,920-42 feet, but Saturday screen had been reset for another test. Vacuum's No. 2 Taylor is standing temporarily at 3,369 feet.

Raccoon Bend—Austin County

Raccoon Bend is expected to figure conspicuously in the coastal news early this week with three tests in oil sands. Humble Oil & Refining Co. and Valley Oil Corp.'s No. 2 Rufus Hardy drilled plug cemented at 3,256 feet but had the misfortune to lose the screen and testing now is delayed by a fishing job. No. 2 Walton, another well on the sand, has drilled plug at 3,272 feet and is coring to set screen. No. 1-C (A) Grawunder is waiting cement to set at 3,370 feet.

These operators' No. 3 Urban is waiting cement to set 1,131 feet where a string of casing has been run. No. 1 J. W. Wilson is in hard shale at 1,210 feet and is setting 13⅜-inch casing. No. 3 E. V. Wilson is rigged up but is waiting a motor to start drilling. No. 2 Dietrich has set 175 feet of 20-inch surface casing. No. 1 Sherrill is drilling rock at 1,065 feet. No. 2 Kearns also is in rock at 1,043 feet. No. 1 Ueckert is drilling shale and lime at 935 feet. No. 3 Thompson is standing rigged up and No. 2 Saunders is a derrick. Drilling operations will be extended far to the south with the making location for No. 1-D Ernest Grawunder. Derrick is being built.

DeWalt—Fort Bend County

Humble Oil & Refining Co.'s No. 2 Deatherage, west of the discovery well, is drilling in sand and shale showing oil at 3,717 feet. No. 5 Sugarland is drilling gumbo and lime at 1,562 feet. No. 2 Camp is drilling sticky shale at 2,703 feet. No. 2 Brazos Farms is drilling sand at 990 feet and No. 3 Brazos Farms is drilling rock at 873 feet. No. 4 Brazos Farms is standing as a derrick. No. 2 Nelson still is lubricating at a total depth of 3,442 feet. It is to be deepened.

Humble —Harris County

South Texas Petroleum Co.'s No. 3 Morris, south edge deep test, is drilling hard, sandy shale at 3,187 feet. The Texas Company's No. 39 Stevenson, offsetting the Morris tract on the north, is rigging up. The Texas Company's No. 22 House, on the north side of the field, is in sand and shale at 4,203 feet but is delaying drilling waiting drill pipe. No. 14 Koehler is drilling brown, sticky shale at 2,977 feet.

Pierce Junction—Harris County

Gulf Production Co.'s No. 2 Fitzsimmons-Hamman, east side of the dome, was expected in as the week closed. It had set strainer with the bottom of the hole in sandy shale showing oil at 4,538 feet. With the completion of No. 27 Taylor as a good producer, Gulf is moving the rig to a location made and a derrick is built for No. 28 Taylor. On the same side, Navarro Oil Co.'s No. 3-A Cain, drilled to 6,030 feet in heaving shale, sidetracked during the week and Saturday was drilling sticky shale and lime at 3,853 feet. Navarro Oil Co. and the Texas Exploration Co.'s No. 14 Dooley, is drilling gummy shale and lime at 2,797 feet. The same operators' No. 4 Dooley, a former well, is rigging up to deepen. Navarro Oil Co. and Humble Oil & Refining Co.'s No. 2 joint Dooley is rigging up to deepen.

On the southwest flank of the dome, Reece Wolfe is spudding in on his No. 1 Herman estate, a wildcat. Rio Bravo Oil Co.'s No. 13-A Settegast, which it is offsetting, is drilling rock at 3,390 feet. The latter company's No. 12-A Settegast is rigged up and ready to spud. Moody Corp.'s No. 4 Settegast on the extreme southwest is down 4,312 feet and is reaming to the bottom to set casing.

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Unit Operation in Baxter Basin Areas

To Conserve Gas For New Lines to Central Utah and Southern Idaho. Water Showings in Lea County Wells

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Feb. 16.—The best well completed in Salt Creek, in Wyoming, since last November was the Wyoming Associated Oil Co.'s No. 3-SD-3, in Section 35-40-79, which made 2,338 bbls. the first 24 hours from the Sundance sand. One well northwest of Salt Creek was abandoned. Operators, representatives of the United States Government, the State of Wyoming, and landowners have reached a tentative agreement for the unit operation of the North Baxter Basin and South Baxter Basin gas structures in Sweetwater County. Drilling operations in Wyoming are still held back by cold weather.

In southeastern New Mexico, the Marland Production Co.'s No. 1 Lynn, in Lea County, encountered water below the gas horizons and it will be plugged back and made into a gas well. The same company's No. 1 Lockhart, in Lea County, is spraying close to 100 bbls. of oil along with the gas. Several wells in that area were abandoned and the Empire Gas & Fuel Co.'s No. 1-C State is showing water at 3,900 feet.

Utah had little news outside of routine, while Colorado continued interested in the Vineland district near Pueblo where 10 rigs are being moved in to test the area around the Rozella well, which is showing oil, but has not yet been tested. One well was completed on the Tow Creek Dome in Routt County by the Hynds Oil Co. with an initial production of 27 bbls.

NEW MEXICO

The Marland Production Co.'s No. 1 Lynn, NW cor. SE, Section 26-23-36, in the Ochoa district in Lea County, southeastern New Mexico, yielded a disappointment this week when it entered a gray sand at 3,930 feet making 400 bbls. of sulphur water along with approximately 45,000,000 feet of gas from horizons above the sand. It cut several gas horizons starting at 3,091 feet with two or three small shows of oil. It will be plugged back and completed as a gas well. The same company's No. 1 Lockhart, NW NW, Section 31-21-36, in the Eunice district, last reported spraying 15 to 20 bbls. of oil with 1,000,000 feet of gas at 3,805 feet, had a small increase in oil at 3,820 feet and at 3,845-58 feet. At last reports it was estimated the quantity of oil being sprayed was close to 100 bbls. The Marland's No. 1 Meyer, SW cor. NW, Section 26-20-37, in the same district, is drilling at 3,710 feet in lime. It was making 10,000,000 to 15,000,000 feet of gas, estimated at 3,540 feet. The Skelly Oil Co.'s No. 1 Joyner, NE cor. SE, Section 26-25-36, on the west side of the Jal district, is still bottomed at 3,331 feet in white lime and has been pinched down to about 2 bbls. per hour while waiting for the erection of additional storage. No test has been made, but some believe the well will make close to 1,000 bbls., which if confirmed, will make it the premier well for Lea County.

Caprock District

The Maljamar Oil & Gas Co.'s No. 2 Pearsall, N half NE NE, Section 33-17-32, in the Caprock district, is bottomed at 4,280 feet and is shut down. Last week, at 4,223 feet, it had 3,000 feet of oil in the hole with a show of salt water at 4,175 feet. At 4,280 feet the hole was bailed dry and the prospects are not very encouraging. This company's No. 2 Beardsley, SE NE, Section 15-17-32, which was completed last June with an initial production of 12 bbls. after a shot, has been abandoned at a total depth of 4,335 feet, and its No. 1 Beardsley, SE NE NE, Section 15-17-32, drilled to 500 feet as a validation hole, also has been abandoned. The Empire Gas & Fuel Co.'s No. 1-C State, SW cor., Section 12-21-34, is shut down at 3,919 feet with a hole full of sulphur water from 3,900-19 feet. It is carrying the 6⅝-inch casing. The Midwest Refining Co.'s No. 13 Farnsworth, NE NE, Section 13-26-36, on the east side of the Jal district, is drilling at 1,380 feet in anhydrite and lime, and its No. 19 Farnsworth, SW SW, Section 19-26-37, is fishing for bit at 3,891 feet.

The Texas Pacific Coal & Oil Co.'s No. 1 State, SE cor. SW, Section 22-23-36, is drilling at 2,899 feet in anhydrite, and A. D. Morton and others' No. 1, C NW, Section 29-11-38, is drilling at 1,430 feet in red rock. Henderson, Dexter & Blair's No. 1 McDonald & Jewett, SE cor., Section 18-20-34, is bottomed at 1,505 feet and underreaming the 10-inch at 870 feet, and the Gypsy Oil Co.'s No. 1 Mattern, SW cor. SE, Section 24-21-36, is bottomed at 665 feet in red shale with the 20-inch at 288 feet and the 15½-inch at 585 feet. Cranfill & Reynolds' No. 1 Wilson, NW NE, Section 23-25-36, commenced spudding January 31, and is drilling at 275 feet in the red beds. The Texas Production Co.'s No. 1 Moberly, NW SE, Section 17-26-37, is fishing at 3,540 feet and its No. 1 Shepherd, SE cor. NE, Section 6-26-37, is fishing at 3,223 feet. The Marland Production Co.'s No. 1 Warren, SW SW, Section 28-20-38, is drilling in lime at 3,412 feet, and its No. 1 Reed, NE SW, Section 22-20-36, is drilling at 3,240 feet in shale and lime. Elliott and others' No. 1 NE SW, Section 11-16-32, in the Caprock area, which has been standing for some time at 725 feet, has been abandoned.

Eddy County

In Eddy County, Flynn, Welch & Yates' No. 56 State, Section 6-19-28, Artesia district, is shut down for orders at 2,600 feet, and Snowden & McSweeney's No. 4 Yates, NE NW, Section 33-18-28, completed in January, 1927, at 2,650 feet as a 20-bbl. well, has been abandoned.

In Chaves County, the Barrendo Oil & Gas Co.'s No. 1 Roswell Farms, SW cor. Section 5-10-24, which has been shut down at 728 feet for a year, is reported abandoned, and the Gibson Oil Corp.'s No. 1 Forsyth, C NE, Section 8-11-23, standing for a year and a half at 672 feet, also is reported abandoned. Snowden & McSweeney's No. 1 Merchant, NW NW, Section 27-15-23, Coontail structure, is reported abandoned at 3,554 feet. No. 1 Jones, C, Section 27-14-23, is reported a location.

The Chupedera Oil Co.'s No. 1 State, SW cor. SE, Section 14-3s-6e, in Socorro County, is reported abandoned at 1,872 feet, and C. H. McCurdy and others' No. 1, SE NE, Section 28-24-15, in Otero County, is a location.

In San Juan County, the Continental Oil Co.'s No. 17 Santa Fe Corp., C NE, Section 2-29-19, Rattlesnake Dome, is drilling at 6,462 feet, and is believed to be within 100 feet of the first sand in the Pennsylvanian. The Childers Drilling & Producing Co.'s No. 2 Ute, NW NW, Section 24-31-16, on the Westwater structure, which cemented the 6¼-inch on top of the Dakota at 2,020 feet, was drilled to 2,075 feet and is reported showing a little oil and gas, but caving badly. It is probable the casing will have to be underreamed and lowered, or a smaller string run.

UTAH

Utah wildcats reports very little progress, cold and bad roads interfering. The Signal Petroleum Co.'s No. 1 NE SW, Section 7-21-19, on the Crescent structure in Grand County, which was taken over from the Sandburg Petroleum Co., has finished rigging to deepen from 2,475 feet, and is waiting for water line to be completed. After cleaning out, a string of 10-inch casing will be run. The Utah Southern Oil Co.'s No. 1 Farnsworth, Section 29-4s-1e, Uintah County, is drilling at 2,810 feet and still in hard gray limy shale, and same company's No. 1-A J. L. Shafer, Section 36-26-20, Cane Creek Dome, in Grand County, is shut down at 2,700 feet in salt water as the river again is frozen over. The Western Crude Oil Co. (W. H. H. Cranmer and others) is moving in a rig on Section 9-20-23, on the Cisco Springs structure in Grand County, 10 miles north of Cisco. The Continental Oil Co.'s No. 1 Boundary Butte, Section 22-43-22, San Juan County, is still bottomed at 4,520 feet and running a string of 5 3/16-inch seamless casing.

COLORADO

The Vineland district southeast of Pueblo continues to be the hot spot in the Colorado news due to the leasing activity and the moving in of a number of rigs. Ten wells are under contract to start within two or three weeks, mostly by local firms. The Rozella Oil Co.'s No. 1 Shaw, SE NW NW Section 3-22-63, the discovery well, reported having 700 feet of oil in the hole about a month ago from a total depth of 1,190 feet, has not yet been tested. The owners have moved in a string of casing, replaced the old tractor with a boiler and are making preparations for a test. The hole has about 600 feet of 6¼-inch in it and the remainder is open. The hole will be enlarged and the 6¼-inch lowered to the sand. The Vineland Oil Co. has been incorporated by the Rozella interests (heretofore a partnership) with an authorized capital of $250,000 to take over the Rozella properties. The incorporators are H. C. Courtney, H. N. Hicks and R. A. Crossman, partners in the Rozella firm.

Leasing is extending out 6 to 10 miles from the discovery. Owners are asking some fancy prices for an unproven field in many instances, along with overriding royalties and strict drilling agreements. The terms asked vary so much no general figure can be named. The major companies have not yet shown any definite moves to acquire acreage though several have scouts and geologists in the district. Their policy appears to be to await further developments and take chances on buying when more is known about the field rather than to comply with the owners' demands for large bonus payments for strictly wildcat acreage. Should a field be developed, it will have several favorable conditions. The pipe line of the Colorado Interstate Gas Co. from Amarillo to Pueblo and Denver goes through the area and will make gas for fuel available. Two railroads run north and south about 10 miles west of the discovery well and two run east and west about 6 miles north. An electric power

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NINETY-DAY SHUTDOWN ASSURED OF DUNDEE PRODUCTION, MUSKEGON

By Special Correspondent

MUSKEGON, Mich., Feb. 16.—A 90-day shutdown of all Dundee production and prospective Dundee production in the Muskegon Field has been assured, it was announced by E. J. Bouwsma, president of the Michigan Oil and Gas Association.

Six new completions added five producing oil and gas wells to the field during the week. Drilling operations resumed their normal pace following the announcement of the price cut in Dundee oil and reduced runs by the Dixie Oil Co. There were fewer rigs shut down as the week closed and a good number of wells on which work had been suspended were shut down for causes other than the price cut in Dundee oil. While few new wells will be drilled into the Dundee sand, all operators will seek production in the upper and lower Traverse sands or in the gas sands of the Dundee formation before shutting down their drilling wells.

The largest oil producer completed during the week was the Ohio Oil Co.'s No. 1 Gates, NE NE Section 11-10-17, drilled into the Dundee oil sand unexpectedly when gas only was sought. A flow of about 500 bbls. of oil and 3,000,000 feet of gas was encountered together at 2,058-59 feet. It will be shut in.

Largest Gasser in Field

The Lima Oil Corp. completed its former No. 2 M. Figge oil producer in the upper Traverse as the largest gasser ever completed in the lower Traverse pay. It came in from 1,865 to 1,870 feet with an open flow capacity of 10,000,000 feet. It is located SE NW Section 9-10-16, Muskegon Township.

Gillette and Beebe's No. 1 Orr, SW NW Section 5-10-16, was an unexpected development when it came in with a flow of nearly 1,000,000 feet of gas and from 100 to 200 bbls. of oil from the upper Traverse. It came in at 1,690 feet.

Dixie Oil Co.'s No. 1 Ross, NE SW Section 12-10-17, Laketon Township, will be completed as a 25 or 30-bbl. producer in the upper Traverse. It made a flow of 30 bbls. one day and will be cased. No production had been expected in the upper pay. It came in at 1,677-78 feet.

A flow of about 500,000 to 1,000,000 feet of gas from the upper Traverse at 1,666 feet will be turned into the gas line from the Reed Oil Co.'s No. 2 Young, SE NE Section 11-10-17, Laketon Township. Gas is scarce in this part of the field and drilling operations have been held up. Dundee oil wells with a large flow of gas had been depended upon previously.

The Puritan Oil Co.'s No. 1 Bishop, NW SW Section 8-10-16, Muskegon Township, was the only dry hole during the week.

Two wells in Muskegon Township preparing to drill into the Dundee gas sands probably will be completed before the close of another week. They are Johnson Oil Refining Co.'s No. 3 L. Heinz, SW NE Section 9-10-16, and the Swastika Oil & Gas Co.'s No. 1 Berkema, SW NW Section 8-10-16. The former was running an extra string of 5 3/16-inch casing to obtain a water shutoff before drilling in, and the latter was being cemented at 2,023 feet above the Dundee formation.

One uncompleted well of the Holland Oil & Gas Co. and one completed as a small producer of oil and gas have been ordered plugged. They are No. 1 and No. 2 Joslyn wells, NE SE Section 5-10-16, Muskegon Township, both located in the area seriously affected by the encroachment of bottom salt water. A number of wells in this part of the field are being pumped to keep down the salt water and produce a little oil. Two other wells ordered plugged were the Victor

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Will Test O'Connell Zone This Week

Indications Point to Substantial Production From New Deep Horizon at Santa Fe Springs. More Drilling Being Done

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Feb. 16.—The potentiality of the new O'Connell zone discovered recently by George F. Getty at Santa Fe Springs is expected to be determined some time during the coming week and all indications point to the development of substantial production as approximately 200 feet of saturated oil sand had already been opened up when drilling was concluded at 6,608 feet. A 4¾-inch combination string has been landed on bottom and cemented through perforations at 6,360 feet preparatory to an early test. The outcome of this production test is of paramount importance because it will exert a considerable effect on field development and result in an intensive deepening campaign if large production is secured.

The finding of this new zone is especially important at the present time as many Buckbee zone wells have shown indications of requiring artificial stimulation in the not far distant future. It is quite likely, therefore, that operators will immediately redrill and deepen these producing wells to the newly discovered O'Connell zone if developments warrant instead of installing compressors in an effort to squeeze production out of a zone which has been rapidly drained as the result of intensive town lot drilling.

It will probably be another couple of weeks before a test is made of the new deep Clarke or Elliott zone found below the 7,000-foot level in the extreme western part of the field by the Associated and Richfield Oil Companies. The Associated cored approximately 50 feet of oil sand in its No. 2 Clarke but passed out of this favorable formation and was at last reports drilling ahead in a gray sand at 7,425 feet. The Richfield's No. 2 Elliott, located northeast of the Associated's project, is a little more favorably located with respect to structure and consequently found a much thicker penetration. It is quite likely therefore that the Richfield will make an immediate production test as a string of pipe has been landed and cemented at 7,105 feet, the bottom of the hole being at 7,195 feet.

Santa Fe Springs Completions

The past week witnessed the completion of another large group of new wells at Santa Fe Springs and a check indicates the probable completion of about 10 more during the next seven days. The General Petroleum's operations continue to feature work at Santa Fe Springs as this company chalked up two more completions in the deep zone within the past few days. The company started off the week by finishing No. 101-B on the E. G. B. lease doing 5,230 bbls. of exceptionally clean 35.3 gravity oil from 5,889 feet and a few days later brought in No. 185-B Santa Fe flowing 3,790 bbls. of clean 35.5 gravity oil per day from 5,050 feet. The former well was finished in the Buckbee zone while the latter was completed in the intermediate Nordstrum horizon.

The General Petroleum's current production aggregates about 65,000 bbls. per day from 26 wells and a check of work under way indicates the probability that this flush production will be maintained for perhaps another week or 10 days as the anticipated completion of eight new wells should offset the normal decline. The Union Oil Co., discoverer of the Santa Fe Springs Field, successfully completed No. 16 Alexander during the early part of the week and this new well was followed into production by No. 11 Alexander, which showed an initial of 1,620 bbls. daily from 5,850 feet. The former, which was finished in the Buckbee zone at 5,844 feet, tanked 1,598 bbls. of clean 35.2 gravity oil during the initial 24-hour test, and is making 18,500,000 feet of wet gas per day in addition to crude oil production. The Union has six other wells nearing completion on the Alexander, Bell and Howard leases and this group will be followed by several more within the next two or three weeks.

The Union's original development plan contemplated the completion of a large part of its present drilling wells in the intermediate Nordstrum horizon but this was changed for some reason or other with the result that completions have been delayed. This company, incidentally, is starting 11 new wells at Santa Fe Springs and material will be placed on ground within the next few days. Locations have already been spotted for No. 12 Howard, Nos. 45 and 46 on the Bell lease and Nos. 12, 13, 14 and 15 on the Farwell property. The Bandini Petroleum Co. successfully finished its No. 8 Off in the Buckbee horizon at 5,885 feet several days ago and it is flowing 4,210 bbls. of clean 35.2 gravity oil daily. This company has two other wells scheduled for completion in the Buckbee zone within the next few days, one of which, No. 9, blew in prematurely flowing at the rate of 2,500 bbls. daily, but which was subsequently killed in order to permit the running of tubing.

The Wilshire Oil Co. successfully increased its list of deep-zone producers by completing No. 2-A Peterson flowing 2,470 bbls. of 34.6 gravity oil daily from 5,872 feet, the hole having been finished with a 4½-inch liner. The Standard added another producer on the Walker lease but this new well, No. 13, proved somewhat of a disappointment as it only showed an initial of 440 bbls. daily from 5,837 feet. York & Lockhart's No. 2 McKeon also failed to come up to expectations upon completion at 5,891 feet as it was only good for 1,460 bbls. daily.

Lawndale

Drilling operations in the recently discovered Lawndale Field of Los Angeles are proceeding with unabated rapidity and this field will become a factor in State production a lot sooner than some anticipate, provided, of course, that oil is present in commercial quantities. At the end of the past week there were 47 strings of tools in operation with the probability that this number may be doubled within the next 30 days. The formation at Inglewood is especially conducive to unusually fast work with the result that five wells are already below the 5,000-foot level and nine more rotating ahead between 4,000 and 5,000 feet. The Smith Development Co.'s No. 1 Durand is perhaps one of the most important drilling projects under way in the Lawndale Field at the present time as this well should be the first to reach the pay anticipated to lie beneath the town lot section now in the throes of an intensive development campaign.

The Standard's No. 1 Vance and No. 1 Ritter of the Superior Oil Co. are also being watched very closely as these projects are only slightly shallower than No. 1 Durand of the Smith Development Co. The completion of No. 1 Peck doing 1,100 bbls. per day by the Smith Development Co. a few months ago immediately resulted in an influx of operators to this district. It also focussed the attention of prospectors on the possibility of opening up one or more additional fields nearby with the result that leasing activities have been quite extensive all the way from the northern boundaries of the Torrance Field up to Playa del Rey, located practically due west of the Inglewood Field.

A number of wildcats have already been started in potentially productive territory in all directions from the discovery well at Lawndale and this pioneering may result in the discovery of one or more new fields within the next six months. It might be mentioned in passing that geologists are almost unanimous in their opinion that this exploration work may possibly result in the addition of one new field. Favorable showings are a matter of record in several wildcats drilled in this general locality during the past four or five years. These wells, as a rule, were drilled by independent operators and the major companies discounted the reported showings in many cases as being of no consequence or planted by the wildcatter in the hope of inducing some one to advance dry hole money. The showings found in many of these wildcats must be significant of something, however, and they are consequently receiving considerable attention at present. The Winwell Oil Co.'s No. 1 Dome, a wildcat located a little less than 2 miles southeast of the Smith Development Co.'s discovery at Lawndale, encountered a good-looking oil sand previous to the suspension of work more than a year ago. Many of the larger companies disregarded this showing entirely even in the face of oil actually brought to the surface due to the fact that a troublesome water condition prevented a satisfactory production

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well, location—	S-T-R	Depth	Status
Standard, No. 5-9 Saticoy, Ventura Co.	10- 2-22	4,660	fishing
Calif. Western Oil Co., No. 1 Elkins, Ventura Co.	28- 4-19	2,951	suspended
Exline, Emma, No. 1 Saticoy, Ventura Co.	33- 3-21	2,412	suspended
American Oil Co., No. 1 Camarillo, Ventura Co.	33- 2-20	787	hd. sd. drilling
Star Pet. Co., No. 2 Canet, Ventura Co.	13- 3-23	6,775	suspended
Bella Chica, No. 1 Temescal, Ventura Co.	4- 4-18	708	suspended
The Texas Company, No. 1 Hueneme, Ventura Co.	Lot 82	.....	location
The Texas Company, No. 1 Wiley Canyon, Ventura Co.	2- 3-19	.....	location
Miley, E. J., No. 2 Casitas, Ventura Co.	12- 3-21	785	suspended
Shell, No. 1 Marr, Simi, Ventura Co.	31- 3-17	1,840	hd. sd. drilling
Continental, No. 1 Sulphur Mountain, Ventura Co.	21- 4-22	3,630	br. sh. drilling
Continental, No. 2 Sulphur Mountain, Ventura Co.	22- 4-22	5,024	br. sh. drilling
Milham Explin., No. 1-A Buttonwillow, Kern Co.	8-28-23	4,662	gas well
Milham Explin., No. 2 Buttonwillow, Kern Co.	8-28-23	2,730	gas well
Milham Explin., No. 3 Buttonwillow, Kern Co.	8-28-23	2,694	gas well
Milham Explin., No. 4 Buttonwillow, Kern Co.	6-28-23	2,670	gas well
Milham Explin, No. 5 Buttonwillow, Kern Co.	5-28-23	2,500	gas well
Milham Explin., No. 6 Buttonwillow, Kern Co.	8-28-23	2,676	gas well
Milham Explin., No. 7 Buttonwillow, Kern Co.	6-28-23	2,720	suspended
Milham Explin., No. 8-A Buttonwillow, Kern Co.	8-28-23	1,171	sd. drilling
Doheny-Stone, No. 1 Salisbury, Kern Co.	7-29-24	4,685	cleaning out
South. Calif. Gas Co., No. 1 Buttonwillow, Kern Co.	4-28-23	4,272	suspended
South. Calif. Gas Co., No. 2 Buttonwillow, Kern Co.	27-28-23	Rig	suspended
Lincoln Drlg. Co., No. 1 Buttonwillow, Kern Co.	6-28-23	190	suspended
Richfield Oil Co., No. 1 Semitropic, Kern Co.	21-26-22	4,760	redrilling
Richfield Oil Co., No. 2 Semitropic, Kern Co.	36-27-23	550	sd. drilling
Pacific Eastern, No. 1 Union Ave., Kern Co.	6-30-28	5,640	suspended
Pacific Eastern, No. 2 Union Ave., Kern Co.	6-30-23	4,500	suspended
Pacific Eastern, No. 3 Union Ave., Kern Co.	6-30-28	4,443	gas, shut in
Pacific Eastern, No. 5 Union Ave., Kern Co.	5-30-28	4,991	suspended
Stabler, W. W., No. 1 Comanche Point, Kern Co.	23-32-29	3,409	br. sh. drilling
Symark Oil Co., No. 1 Edison, Kern Co.	24-29-29	1,000	gr. sd. drilling
Midway Northern, No. 1 Edison, Kern Co.	29-29-30	3,834	cleaning out
Deizel, S. A., No. 1 Delano, Kern Co.	4-26-27	3,880	gr. sd. drilling
Elmer Oil Co., No. 1 Shafter, Kern Co.	8-28-25	5,504	fishing
Elmer Oil Co., No. 1 Rosedale, Kern Co.	33-29-26	Rig	suspended
Standard, No. 1 San Emidio, Kern Co.	35-11-22	3,793	fishing
Union, No. 1 San Emidio, Kern Co.	5-10-21	2,335	to abandon
Currency Pet. Co., No. 1 Vineyard, Fresno Co.	28-21-14	1,240	gr. sh. drilling
Hornaday & Huggins, No. 1 Kerman, Fresno Co.	32-14-18	Rig	rigging up
K. C. L. Oil Co., No. 1 Joaquin Ridge, Fresno Co.	7-19-15	Mtl.	building rig
Union, No. 1 Huasna, San Luis Obispo Co.	34-32-15	3,232	redrilling
Union, No. 1 North Huasna, San Luis Obispo Co.	12-32-14	2,880	reaming
Panorama Oil Co., Well No. 1, San Luis Obispo Co.	7-31-21	3,600	pipe bad
Dollar Oil Co., Well No. 1, San Luis Obispo Co.	13-32-22	129	sd. drilling
Sequoia Oil Co., Well No. 2, San Mateo Co.	15- 7- 5	1,605	suspended
Sunset Pacific, No. 1 Saratoga, San Mateo Co.	13- 7- 4	Rig	suspended
Calhoma Oil Co., No. 1 Livermore, Alameda Co.	9- 3- 3	1,544	hd. sd. drilling
Foster & Hammill, Well No. 1, Alameda Co.	21- 3- 3	465	hd. sd. drilling
R. Y. Hanlyn, Well No. 1, Alameda Co.	3- 5- 2	360	suspended
Shell, No. 1 Guadalupe, Santa Barbara Co.	36-10-35	1,960	hd. sd. drilling
Shell, No. 2 Goleta, Santa Barbara Co.	36- 5-31	1,307	fishing
Standard, No. 1 Point Conception, Santa Barbara Co.	X- 5-34	529	sd. sh. drilling
Standard, No. 1 Tortuga Canyon, Santa Barbara Co.	.....	1,060	br. sh. drilling
Standard, No. 1 Point Arguello, Santa Barbara Co.	X- 7-35	.....	location
Bankline Oil Co., No. 1 Mesa, Santa Barbara Co.	X- 4-27	2,020	br. sh. drilling
System Oil Co., No. 1 Orcutt, Santa Barbara Co.	36-10-34	Rig	rigging up
Petroleum Securities, No. 1 Santa Ynez, Santa Barbara Co.	.....	.....	location
Tepesquit Oil Co., Well No. 1, Santa Barbara Co.	3- 9-32	2,710	suspended
Becker, Geo. F., No. 1 Summerland, Santa Barbara Co.	33- 4-25	3,090	suspended
Channel Oil Co., Well No. 1, Santa Barbara Co.	29- 4-27	6,304	cleaning out
Continental, No. 1 Carpinteria, Santa Barbara Co.	33- 4-25	3,990	set 6⅝-inch
Colusa Oil Co., Well No. 1, Colusa Co.	31-15- 4	380	redrilling
Nuna Oil Co., Well No. 1, Colusa Co.	19-15- 5	400	suspended
Superior Oil Co., No. 1 Calivada, Colusa Co.	31-15- 4	1,011	suspended
North Counties Oil Co., Well No. 2, Humboldt Co.	36- 2- 1	2,205	suspended
Humboldt Oil Co., Well No. 1, Humboldt Co.	6- 2- 1	3,041	redrilling
Kuhns, H. L., Well No. 1, Merced Co.	9-12- 9	1,570	suspended
Angiola Oil Co., No. 1 Angiola, Tulare Co.	27-22-23	4,197	hd. sd. drilling
Shell, No. 1 Dudley, Monterey Co.	15-22- 9	498	hd. sd. drilling
Brown Oil Co., No. 1 Parkfield, Monterey Co.	.....	.....	location
Dudley Ridge Synd., No. 1 Tulare, Kings Co.	12-23-19	800	sh. drilling

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Ring Pet. Co., No. 1 Inglewood, Los Angeles Co.	28- 2-14	2,040	hd. sd. drilling
Petroleum Securities, No. 1 Hermos, Los Angeles Co.	32- 3-14	912	sd. drilling
West. Drlg. & Prod. Co., No. 1 Manhattan, Los Angeles Co.	30- 3-14	1,247	sd. sh. drilling
Mont. Park Oil Co., No. 1 Browning, Monterey Park	26- 1-12	4,420	suspended
Mont. Park Pet. Co., No. 1 Jepson, Monterey Park	25- 1-12	3,937	suspended
Rio Grande, No. 1 Downey, Los Angeles Co.	34- 2-12	3,504	hd. sd. drilling
Jackson, R. W., No. 1 Whittier, Los Angeles Co.	19- 2-11	Rig	rigging up
Burlingham Pet. Co., No. 1 Compton, Los Angeles Co.	17- 3-13	112	sd. drilling
Richfield, No. 1 Maywood, Los Angeles Co.	13- 2-13	4,419	sd. sh. drilling
Easton & Smith, No. 1 Calabasas, Los Angeles Co.	19- 1-17	2,982	suspended
Russell Oil Co., No. 2 Joughin, Los Angeles Co.	25- 3-17	1,520	hd. sd. drilling
Pomona Oil Co., Well No. 1, Los Angeles Co.	32- 1- 8	1,090	hd. sd. drilling
Anchor Oil Co., No. 1 Puente, Los Angeles Co.	19- 2-10	4,820	suspended
Richfield Oil Co., No. 1 Puente, Los Angeles Co.	9- 2-10	3,434	recemented
Calif. Eastern, No. 1 Wickham, Los Angeles Co.	32- 5-17	3,160	plug. back
Calif. Eastern, No. 1 Devil Canyon, Los Angeles Co.	21- 5-17	Mtl.	building rig
The Texas Company, No. 1 Anaheim, Orange Co.	35- 4-10	3,840	hd. sd. drilling
Bastanchury Ranch Co., Well No. 1, Orange Co.	21- 3-10	Rig	suspended
Mesa Pet., No. 1 Newport, Orange Co.	21- 6-10	3,485	br. sh. drilling
West. Drlg. & Prod. Co., No. 1 Newport, Orange Co.	18- 6-10	4,461	cleaning out
West. Drlg. & Prod. Co., No. 2 Newport, Orange Co.	18- 6-10	Rig	rigging up
Hall Pet. Co., No. 1 Murrietta, Riverside Co.	23- 7- 3	975	fishing
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	3,232	set pipe
Davenport O. & G. Co., No. 1 San Marcos, San Diego Co.	30-12- 8	892	suspended
Turner, S. S., No. 1 Escondido, San Diego Co.	25-12- 2	1,680	hd. br. lime

test. It is significant to note, however, that a parallel case to this exists at Lawndale. The first well of the Smith Development Co. at Lawndale showed a similar unfavorable condition and work was ultimately suspended at 6,215 feet because of the inability to control water. Subsequent work by the Smith Development Co. and the San Clemente Oil Co. resulted in the completion of a 200-bbl. flowing well and another making 1,100 bbls. daily. It is quite possible therefore that the favorable showing made by the Winwell Oil Co.'s Dome well may be the forerunner of additional exploration work in the very near future and ultimately result in the discovery of a new field between the Lawndale and Torrance Fields. It may be possible of course that the Winwell project is an edge well on the extreme southeastern flank of the Lawndale Field, as some believe, but its exact status, however, can only be determined by actual drilling.

Long Beach

Drilling operations in the Long Beach Field are gradually getting smaller each week and with completions becoming less numerous field production is consistently declining. Daily production at Long Beach is off 27,000 bbls. from the peak of 202,000 bbls. reached on June 15, 1928, and a survey indicates that the trend of production in this district will be consistently downward from now on. Several good wells have recently been finished in the western end of the Long Beach Field and deep production is gradually being extended into the Los Cerritos town lot area or northwest extension. The Los Cerritos section of the Long Beach Field failed to sustain intensive town lot drilling when developed a few years ago with the result that most of the wells drilled in this area failed to pay out. Two separate 100-foot sands were developed and while they resulted in a large temporary flush they were quickly drained and showed a very small recovery due to rapid gas depletion resulting from over development. Al Johnson finished a satisfactory producer in the Los Cerritos area during the past week when his No. 1 Craigen & Gray was brought in under a natural flow doing 1,502 bbls. of clean 29.6 gravity oil daily from 6,581 feet, the hole having been finished with a 4¾-inch oil string cemented through perforations at 6,410 feet. This new producer is just over the generally accepted line separating the Los Cerritos district from the older area of the Long Beach Field. It indicates, however, that additional deep drilling in this area will be productive of satisfactory results as the ol from Johnson's new lell is absolutely clean.

The Generau Petroleum is working on several wells out in the Los Cerritos area and should consequently throw considerable light on the potentiality of this area in the near future. The Shell, discoverer of the Long Beach Field, and largest single operator at the present time, finished three new wells during the past 10 days. The company's latest completion was No. 6 Stakemillr, a new well which has just coce in flowing 2,400 bbls. daily from 7,143 feet. The output is still cutting in excess of pipe line stipulations, however, and this well may consequently require some corrective work. No. 6 Nicholson, which came in flowing 645 bbls. daily from an even 7,500 feet, was also showing a rather high cut at last reports but may ultimately clean up after being on production for a few days lonegr. No. 5 fee, which has been on a probationary production test since the first of th emonth, has cleaned up somewhat but is still cutting 15 per cent. This well, which showed an initial of 2,870 bbls. daily from 7,674 feet, has been holding up in good shape and will probably not be disturbed as long as the production and cut remains constant. No. 10 Jones was put on a preliminary production test a few days ago at 7,306 feet but it was subsequently killed and recemented as the initial output, 625 bbls., was cutting a little less than 40 per cent water.

The California Western Oil Co. finished an exceptionally favorable producer in the Frog Pond area a few days ago when No. 4 Darby was completed at 6,860 feet. This new well came in under a natural flow doing 2,680 bbls. of exceptionally clean 29.6 gravity oil and 4,100,000 feet of wet gas daily. The gas, incidentally, is yielding a recovery of 2½ gallons of natural gasoline for each 1,000 feet of wet gas treated. The Continental Oil Co.'s No. 1 Denio was also a satisfactory completion from both an oil and gas standpoint as it is making 1,265 bbls. of unusually clean 29.5 gravity oil and 3,500,000 feet of wet gas daily from 6,350 feet. A. J. Delaney, who has experienced considerable success in development work at Long Beach, successfully completed No. 2 Irwin, a new well flowing 1,409 bbls. of clean 29.6 gravity oil daily from 6,677 feet. Dabney & Johnston's No. 21 Long Beach, which was finished during the early part of the month flowing 1,065 bbls. of clean 29.2 gravity oil daily from 6,253 feet, has exceeded all expectations for stabilized production, there being no decline evidenced up to the present time.

Rosecrans

The Richfield Oil Co. focused the attention of operators on the Rosecrans Field of Los Angeles Basin by recompleting its No. 1 Rosecrans flowing 1,465 bbls. of clean 39.2 gravity oil and 2,000,000 feet of wet gas daily from 6,042 feet. This well was originally drilled by the McKeon Oil Co. and up until recently had been producing from 4,825 feet. The crew from this well was immediately transferred to No. 2 Rosecrans and this new project is being rigged up for an early spud. The next completion to be listed in the Rosecrans Field should be No. 8 O'Dea of the Barnsdall Oil Co. as a string of 6¼-inch is just being run in preparatory to an early test. Development work in the Seal Beach Field of Los Angeles Basin resulted in the recompletion of the Standard's No. 4 San Gabriel doing 980 bbls. of clean 27.4 gravity oil from 4,934 feet a few days ago and, judging by their present status, two or three other wells should be tanking oil within the next 10 days. The Texas Company's No. 1 Lovell, located in the Alamitos Heights town lot area, has cleaned up since completion last week and is at the present time flowing 500 bbls. of clean 30.4 gravity oil daily from 6,582 feet. The Associated ran into an extremely heavy accumulation of gas in No. 12 Bryant, located in the extreme eastern part of the Seal Beach Field, several days ago and it was found necessary to utilize hematite to augment the drilling fluid in order to prevent a premature blowout. There are 19 new wells and deepening projects under way in the Seal Beach Field at the present time and since all but one of these holes are below the 4,000-foot level the production of this field should show a rather substantial increase as the result of their completion during the next 30 days.

Ventura Avenue

Although there has not been any concerted attempt made to increase the scope of work in the Ventura Avenue Field, drilling operations are somewhat larger at the present time than they have been for several months. The Shell completed No. 28 Taylor flowing 2,860 bbls. daily from 6,960 feet a few days ago and this new well should be followed into production by several more shortly. The Shell, Associated and Pacific Western are all expected to finish a number of new wells during the next 30 days as this trio is running 41 strings of tools. The Bolsa Chica Oil Co. recompleted No. 2 Hartman and put this well on a production test at 7,301 feet but the output failed to compensate for the additional hole opened up. Core samples revealed the existence of good oil sand in the new hole added and the failure to show increased production has led to the assumption that the well has probably bridged over. There were no developments of importance recorded in the Rincon Field during the past week with the exception of the fact that the Richfield Oil Co.'s No. 1 Hobson passed the 7,000-foot level in its so far unsuccessful search for a new deep zone. The possibility of encountering a new deep horizon at Rincon looks rather discouraging at the present time although there is still a slight chance.

Elwood

The Barnsdall and Rio Grande are making good progress in the two wells now being drilled in the Elwood Field of Santa Barbara County and both of them, No. 3 Doty and No. 6 Bell Lutes, should be completed in the very near future, the former being scheduled for a production test within the next 10 days. The Elwood Consolidated Oil Co. has cored 12 feet of oil sand in the Sespe formation in its wildcat located about 4 miles northeast of the Barnsdall's holdings and approximately 2 miles east of E. J. Miley's No. 1 Tecolote, the first well to be completed on the Goleta structure which, incidentally, is situated due north of the Elwood Field. Preparations are being made to test out the Elwood Consolidated's new well and the potentiality of this area should be determined within the next week or 10 days. The phenomenal sustained production shown by all wells completed in the Elwood Field up to the present time has greatly stimulated interest in the possibility of discovering similar new fields in this vicinity. The Mesa area immediately adjacent to the city of Santa Barbara looks especially interesting at the present time and development work in this area will no doubt be watched with considerable interest because of its potentiality.

Midway-Sunset

Two new wells were completed in the Midway-Sunset Field of Kern County during the past week, both of them standing to the credit of the Standard Oil Co. The largest was No. 91 in Section 29-31-24, as it showed an initial flow of 340 bbls. daily from 4,720 feet. No. 6 in Section 7-32-24 was an 85-bbl. pumper from 3,010 feet, the oil testing 23.4 degrees and showing a cut of 2 per cent.

(Continued on Page 121)

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	.....	1,180,337
Diesel and gas oil	.....	.....	141,816	20,259	389,566	449,739
Gasoline	342,464	48,923	156,302	22,329	2,759,943	1,652,625
Coastwise—						
Crude oil	770,218	110,031	497,354	71,051	4,173,995	1,854,056
Fuel oil	331,097	47,300	391,214	55,888	2,760,017	2,693,264
Diesel and gas oil	.....	.....	.....	.....	88,022	180,678
Gasoline	252,322	36,046	144,585	20,655	1,565,488	1,779,854
Kerosene	.....	.....	.....	.....	1,139	14,615
Naphtha distillate	.....	.....	.....	.....	.....	77,492
Exports—						
Crude oil	151,468	21,638	.....	.....	494,333	383,308
Fuel oil	572,926	81,847	254,687	36,384	2,755,200	3,931,106
Diesel and gas oil	155,650	22,236	33,598	4,800	391,863	453,081
Gasoline	.....	.....	.....	.....	1,230,018	619,526
Kerosene	.....	.....	.....	.....	397,600	644,942

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	.....	167,695
Gasoline	.....	.....	77,870	11,124	411,068	154,238
Lubricants	.....	.....	.....	.....	.....	69,854
Coastwise—						
Fuel oil	.....	.....	100,659	14,380	406,146	554,236
Diesel and gas oil	.....	.....	11,983	1,712	27,989	18,409
Gasoline	35,118	7,017	72,884	10,412	455,018	487,061
Kerosene	.....	.....	4,954	708	11,738	37,248
Exports—						
Crude oil	.....	.....	.....	.....	71,453	20,073
Fuel oil	.....	.....	.....	.....	51,080	437,306
Diesel and gas oil	.....	.....	.....	.....	62,815	.....
Gasoline	120,813	17,259	.....	.....	667,767	660,070
Kerosene	.....	.....	.....	.....	68,030	141,420
Lubricants	.....	.....	.....	.....	13,693	.....

LARGEST FLUSH PRODUCTION YET SECURED IN TURNER VALLEY FIELD

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Feb. 16.—In the Turner Valley Field southwest of Calgary, Home Oil Co.'s No. 1, LSD 10, Section 20-19-2w5, has blown into production in the deep lime at 5,280 feet with a wet gas flow estimated over 17,000,000 feet a day. The flow later increased to around 25,000,000 feet, with a crude naphtha recovery estimated around 750 bbls. a day. This is the largest flush production yet secured in the Turner Valley Field. The strike materially extends the producing area in the deep lime, Home's No. 1 being the first test in the south end of the field to get production in the Madison. The location is more than a mile south and a little east of Royalite's No. 4 gusher, in line with the southeast and northwest trend of the structure. Home Oil Co.'s No. 1 was the first test to get light crude production in the south end of the Turner Valley, opening the Home sand in the Fernie shale horizon. Imperial Oil, Ltd. is drilling out the Home leases under an arrangement with the Home Oil Co.

Official figures of crude naphtha and crude oil deliveries from the Turner Valley Field in January show an aggregate of 38,506 bbls. compared with 47,505 bbls. in December, a reduction of 9,004 bbls. Of the total amount, 25,815 bbls. of crude naphtha and 11,092 bbls. of light crude were delivered to Imperial Oil, Ltd. and 161 bbls. of crude naphtha and 1,438 bbls. of light crude oil to Regal Oil Refineries, Ltd. The decline in production was due to the freezing of two wells, Okalta's No. 1, which delivered more than 11,000 bbls. in December and only 2,617 bbls. in January; and Dalhousie's No. 1, which had 2,555 bbls. in January as against 5,887 bbls. in December. On the other hand, Royalite's No. 4 showed an increase from 15,564 bbls. to 17,310 bbls. Royalite's Nos. 15 and 17 appeared in the totals for the first time, while Foothill's No. 1 showed an increase. In some cases wells produced only part of the month, due to freezing, while at others quantities of unsold oil were still in the tanks. The detailed production follows:

Deliveries to Imperial Oil, Crude Naphtha

Well—	Total	Daily Avg.
Royalite's No. 1	60	2
Royalite's No. 4	17,310	558
Royalite's No. 7	2,441	79
Royalite's No. 8	39	1
Royalite's No. 17	716	23
Dalhousie's No. 1	2,555	82
Illinois-Alberta's No. 1	2,694	87
Total	25,815	832
Imperial Oil, Light Crude		
Royalite's No. 9	805	26
Royalite's No. 10	194	6
Royalite's No. 11	264	8
Royalite's No. 12	302	10
Royalite's No. 15	697	22
Royalite's No. 17 (one day)	20	20
Dalhousie's No. 5	1,729	56
Dalhousie's No. 6	446	11
Foothills' No. 1	2,300	74
Foothills' No. 2	167	5
Home's No. 1	828	27
Home's No. 2	722	23
Okalta's Nos. 1 and 2	2,617	84
Total	11,092	372
Regal Refineries, Crude Naphtha		
Vulcan Oils' No. 1	161	5
Regal Refineries, Light Crude		
New McDougall-Segur	194	6
McLeod Oil Co.	416	13
Spooner Oils'	828	26
Total	1,438	45

This gives the field an average daily production of approximately 1,239 bbls. Actual production at the Spooner wells in January was reported by the company

(Continued on Page 121)

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Two Good Gassers in Butler, Pa., Pool

May Limit Extension Northwest From Oil Producers. Extension South and Southwest Thought Possible

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Feb. 18.—Most interest has been centered in the new pool in Buffalo Township, Butler County, Pennsylvania. Two wells were drilled in, both gassers. The location of these wells is to the northwest of developments. Miller & Reimer's test on the Joseph Price farm was the first drilled in and is a gasser good for 8,000,000 feet. At about the same time the Phillips Gas & Oil Co. drilled in a second test on the Susan J. Penrore. At 3 feet in the sand it showed 2,000,000 feet. Later it was drilled 5 feet deeper and its valume increased to 11,000,000 feet. Both wells coming in gassers makes the outlook for an extension northwest from the oil producers very doubtful.

To the south and southwest, where several wells are due in the sand, the prospects for an extension are very favorable. At the present time the production of the pool is about 500 bbls. This should be considerably increased when the wells to the south and southwest are completed. To give an idea of how strongly the oil is impregnated with paraffin, when a bottle is filled with it and the mercury registers around zero and the bottle is turned upside down, the oil will be so congealed it will not run out. It can easily be imagined what a proposition the pipe line company is up against.

The Hope Construction & Refining Co.'s test on the Samuel Robinson farm in Fallowell Township, Washington County, is holding up at 135 bbls. a day. The well was drilled in two months ago and has inspired the Hope Construction & Refining Co. to start a test on the adjoining farm. However, there will not be much activity in that locality until after the pipe line company extends its line to the development.

WEST VIRGINIA

In Ravenwood district, Jackson County, West Virginia, the South Penn Oil Co. has completed in the Berea grit a second test on the C. S. McCarty farm. It is a natural producer good for 20 bbls. a day. The rig for No. 4 on the same farm has been completed. The location is 700 feet north of the first test on the same farm.

On Tripplet Run, Spencer district, Roane County, Grow & Decker have completed in the Big Injun sand a second test on the I. N. Morford farm. It is a gasser good for 500,000 feet.

On Leatherbark Creek, 1 mile east of Smithville, in Murphy district, Ritchie County, the Hope Natural Gas Co. has now drilled No. 3 on the M. A. Ayers farm through the Maxon sand showing for a 10-bbl. pumper.

In McElroy district, Tyler County, the South Penn Oil Co. drilled its test on the S. P. and L. J. Lemasters farm through the Gordon sand. It will be shot and if it does not show any oil will be abandoned.

On Laurel Run, Murphy district, Ritchie County, E. E. Pipe has completed in the Salt sand No. 4 on the H. S. and R. Wilson farm. It is good for 3 bbls. In Green district, Wetzel County, Rawe Brothers have a light pumper in the Gordon sand at No. 5 on the L. W. Morgan farm. In Union district, Pleasants County, Albert Neely's second test on the John Williamson farm is a 3-bbl. pumper. In Grant district, Carter & Rinehart have a duster on the R. Reynolds farm. In the same district, Frank Knox and others are drilling on the D. R. Westbrook farm.

Lincoln and Logan Counties

In Union district, Lincoln County, the United Fuel Gas Co. has a gasser in the Berea grit at No. 1,996 on the G. W. Oxley farm. In Scott district, Boone County, the Cameron Oil & Gas Co.'s No. 10 on the George P. Alderson farm is a gasser in the Big Injun sand. In the same district, the United Fuel Gas Co. has a Big Injun sand gasser at No. 1,994 on the Horse Creek Land & Mining Co. tract.

In Chapmanville district, Logan County, the Trojan Gas Co. has a duster in the Berea grit, but a light gasser in the Big Lime formation at No. 3 on the Edward Garrett farm. In Logan district, the Peck Oil & Gas Co.'s No. 3 on the Peck heirs' farm is a gasser in the Big Injun sand. In DeKalb district, Gilmer County, the Hope Natural Gas Co. has a gasser in the Big Injun sand on the Frank Wilson farm.

Deep Gasser in Lewis County

In Hackers Creek district, Lewis County, the McCall Drilling Co. has now drilled its test on the I. W. Bergerhoff farm through the Benson sand. It is a gasser at a total depth of 4,200 feet. In McElroy district, Tyler County, Trainer Brothers have a gasser in the Big Injun sand on the C. O. Sheets farm. In McElroy district, the Hope Natural Gas Co. has a gasser in the Big Injun sand on the M. V. B. George farm.

In Harvey district, Mingo County, 4,700 feet northwest of the Red Jacket Coal & Coks Co.'s test, on Broad Camp Branch, Thompson Brothers have drilled a test on the Robert Vance farm into the Maxon sand. It is a gasser good for 1,250,000 feet.

On Mole Hill, Clay district, Ritchie County, Forest Maxwell has completed in the Big Injun sand a duster on the W. M. Maxwell farm.

On Bull River, Sherman district, Calhoun County, C. B. Lewis and others have a gasser good for 500,000 feet on the C. W. Harris farm.

Starting Test Wells

On Twelve Pole Creek, Harvey district, Mingo County, 1½ miles north of the Red Jacket Oil & Gas Co.'s No. 3 on the Red Jacket Coal & Coke Co.'s property, F. H. Yates has a rig completed on the Workman-Cowden farm. On Big Rock Camp Run, Spencer district, Roane County, the Federal Oil & Gas Co. is moving a drilling machine on the Roberts, Pell & Newman tract. On Lamba Run, Murphy district, Ritchie County, on King Knob Ridge, the Mid Penn Oil Co. has a rig completed on the Payton Tigler farm. In Sherman district, Calhoun County, W. S. Dailey is rigging up on the Whit Stump farm. In McElroy district, Tyler County, the Hope Natural Gas Co. is due in the sand on the M. V. George farm.

In McClellan district, Doddridge County, Raad & Nuss have started to drill on the A. M. F. Lyons farm. In Ten Mile district, Harrison County, Clara Rose and others are rigging up on the Lovey Williams farm. In Duval district, Lincoln County, the Downing Gas Co. has shut down to repair boiler on the Ned Davis farm. In Grant district, Cabell County, the Empire State Gas Co. is rigging up on the J. W. Savage farm. In Meade district, Marshall County, the Valley Gas Co. is rigging up on the George Yoho farm. In Spencer district, Roane County, the Hope Natural Gas Co. is rigging up on the W. T. Craig farm. In Sheridan district, Calhoun County, W. S. Dailet & Co. are rigging up on the Robert E. Maze farm.

Marion County

In Mannington district, Marion County, J. J. Allen has started to drill on the S. C. Thorn farm. In the same district, C. S. Morris has shut down at 3,000 feet with the tools in the hole on the Riley Arnett farm. The Continental Oil Co. has the rig up for a second test on the John Haddix farm. In Collins Settlement district, Lewis County, H. P. McGinnis is due in the sand on the L. D. Anderson farm.

Robert Elder & Co. have a rig up on the M. E. Starkey farm, in Murphy district, Ritchie County. In the same district, the New York Petroleum Co. is rigging up at a second test on the Jacob Shrader farm. In the same district, the Miller Farm Oil Co. is rigging up on the B. F. Miller farm. In Union district, the Carnegie Natural Gas Co. is due in the sand on the Lloyd Weaver farm. In the same district, the Imperial Oil Co. is due in the sand on the T. A. Baker farm. In Grant district, B. C. Deem has made a location on the Samuel Hatfield farm. In Murphy district, H. H. Satterfield has started to drill on the James Hardman farm.

SOUTHEAST OHIO

In Section 12, Fallsbury Township, Licking County, the Emerald Petroleum Co. has completed a better than average Berea grit well at its second test on the I. M. Coshran farm. It produced 35 bbls. the first 24 hours after shot in the formation named.

Two miles south of Layman, Section 1, Fairfield Township, Washington County, the Preston Oil Co. has completed in the Vincent sand at 577 feet, No. 3 on the Hartley E. Walsh farm. It is a 4-bbl. pumper. In Section 34, Independence Township, Creighton and others have completed in the Salt sand a light pumper on the H. Z. Ludington farm. In Marietta Township, M. R. McCauley and others have a duster on the John Millison farm. In Lawrence Township, I. L. Boyle and others have a very light pumper at No. 15 on the Susanana Haminager farm. In Marietta Township, E. Clark, Jr., No. 8 on the B. W. Pape farm is a duster.

In the Newark district, Section 12, Franklin Township, Licking County, the Banking & Trust Co. of Marietta, Ohio, has completed in the Berea grit No. 11 on the J. W. L. Motherspaw farm. It is a 3-bbl. pumper.

Light Pumper in Vinton County

At Bollin Mills, Knox Township, Vinton County, the Co-operative Oil Co. has completed in the Berea grit a 3-bbl. pumper on the Garfield Brown farm.

In Section 12, Lawrence Township, Washington County, the Shay-McMullin Co. has completed a second test on the John L. Hall farm. It is good for 20 bbls. a day in the Maxon sand. In Independence Township, Section 29, Harry Schrader is drilling on his own farm. In Section 28, Harlan, Schramm & Co. have a light gasser on the John Harris farm and a duster at No. 9 on the J. H. Ward farm.

SOUTHWEST PENNSYLVANIA

In the Ingomar Field, Allegheny County, J. S. Wally & Co. have completed a second test on the James E. Carroll farm. It is a 5-bbl. pumper. In the same locality, H. H. Huff & Co. completed a second test on the Joseph Hill farm. It is a 3-bbl. pumper in the Third sand.

(Continued on Page 115)

OIL FOUND IN WEBSTER COUNTY, NEAR HENDERSON COUNTY, KY.

By Whit
Staff Correspondent, Kentucky-Tennessee

OWENSBORO, Ky., Feb. 16.—The most interesting development in the western division of Kentucky was the finding of oil in Webster County, near the Henderson County line by Clark and Bovard, Tennessee operators, the oil being found in what is known as the Powell sand at a depth of 410 feet. At only 1 foot in the sand the hole filled up with oil and the owners not expecting to get the pay had no casing on hand. The well will be drilled a little deeper and indications are for a nice producer. This test is in close proximity to Robards Station.

Hupp and Duff, eastern Kentucky operators, now working in the western Kentucky Field, have exercised their option on the George Engle-George Trout thirteen-thirty-seconds of the Ellis Bartlett 54-acre lease, near Taffy, southwest of the Ambrose Pool in Ohio County, where a splendid well was brought in several days ago flowing at the rate of 150 bbls. a day. A 15-day option was given by Engle and others for $750, with the price of the portion of the lease at $20,000. This is the initial well on the 54-acre lease. Nos. 2 and 3 are drilling on the same farm, and the same parties own a lease on the Trodgen farm, which adjoins the Bartlett lease, and they are drilling two wells on the Trodgen lease. It looks as though this is an extension of the Ambrose-Weller Pool, and if not it will open up another pool.

Week's Work

A summary for the week from the Kentucky fields shows 12 completions, 10 producers with an initial production of 214 bbls., 2 dry holes and no gas wells.

County—	Comp.	Oil wells	Prod.	Dry
Ohio	6	4	83	2
Daviess	4	4	105	0
Magoffin	1	1	25	0
Warren	1	1	1	0
Total	12	10	214	2

Eastern Kentucky

In District 31, Johnson-Magoffin Counties, on Short Fork, Hupp, Duff and others' No. 7 on the J. M. Frazier farm, has been completed and indicates a 25-bbl. producer. No. 6, same farm, also produced an initial of 25 bbls.

Ohio County Wells

An interesting development in Ohio County is the finding of a well reported good for better than 40 bbls. by Wheeler and Botts on the Edward Crow farm, near the Gilbert Jolly Pool, near Burford in the western part of the county and near the division line of Daviess County, bringing the Gilbert Jolly Pool once more to the notice of the industry.

Near Adaburg, C. D. Pratt and others' second test on the J. L. Ralph 60 acres, is reported showing around 20 bbls. In this well a string of 460 feet of casing was set; sand at from 465 to 485 feet.

Snowden-McSweeney Co. set a string of 675 feet of casing, got sand from 680 to 695 feet at No. 12 on the J. J. Midkiff farm, in the Midkiff Pool, which produced an initial of 8 bbls., the total depth drilled in the hole being 704 feet.

In the King Pool, the Creek Drilling

(Continued on Page 115)

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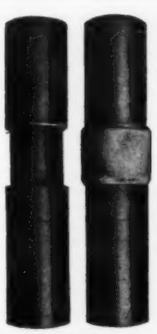

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Central Ohio Leads in Completed Wells

Indiana Fails to Report Single Completion. Gas Operations Continue Chief Feature in Ohio Developments

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Feb. 18. — Little is being accomplished in any area of the Central West fields, owing to the weather.

Central Ohio as usual leads in completed wells reported as well as the staking out of new locations to drill as soon as weather conditions improve. The only division of the Central West that failed to report a completion was Indiana and the bulk of the work in that State is in the southwestern portion.

In the old Lima Field of northwestern Ohio, three completions were announced, the best of the trio being northeast of Fostoria in Jackson Township, Seneca County, and not far removed from Rising Sun. This is A. R. Smith's No. 16 well, 1,000 feet from the north line and 600 feet from the east line of the H. L. Smith farm, on the oil map as the W. Snider farm, in the SE of Section 8. Sand in this well was topped at 1,225 feet and drilled 53 feet in the sand to a total depth of 1,278 feet, where it produced under pump an initial production of 20 bbls., a very good well for the old producing territory. In Allen County, Spencer Township, Metzger Brothers' No. 4 well, 150 feet from the north line and 1,100 feet from the east line of the Henry Metzger farm, in the NW of Section 12, pumped 15 bbls. initial. Sand was found in this well at 1,184 feet and drilled 50 feet into the sand.

Forest Gas Field

In the Forest Gas Field in Hardin County, in the eastern portion of the old Lima Field, Patton, Chagwin and the Kurtz Gas Co. drilled in a second test on the Frank McKinley farm, in Jackson Township, approximately 800 feet west of the Aaron McKinley No. 1, and about 200 feet west of the Patterson Kelly Pike and northwest of the filtering plant, and developed a dry hole. In this well 18 feet of drive pipe was set, then 250 feet of casing. Top of Trenton was at 1,221 feet and the well was completed at a total depth of 1,261 feet or 40 feet in the sand. It is being plugged and pulled out. The old No. 1 on the Frank McKinley farm was drilled in on March 15, 1910 and was never shot. It was drilled by the landowner and the gas has been used by him to heat his residence for 18 years. At the time this well was drilled there was no market for gas there. In the same field the Hertzog Lime & Stone Co., better known as the Forest Oil & Gas Co., is drilling No. 2 on the William Kurtz farm, and the Kurtz Gas Co. is drilling No. 3 on the William Kurtz farm.

Anticipating the continued development of the Patterson Gas Field, near Patterson and north of Kenton, the Ohio Fuel Gas Co. has authorized the enlargement and improvement of its present filtering plant there. Workmen have begun work on the additions and soon the plant will be able to handle a considerable portion of the output of the well on the Aaron McKinley farm, the largest producer of gas in the entire Forest Field, in addition to its present volume.

Announcement has been made that Chicago capital will drill several wells in the vicinity of the large Lewiston Reservoir in the northwest part of Logan County, southwest of Kenton and southwest of the Roundhead oil area in the southwestern part of Hardin County. A new resort is in the making at the reservoir, which is managed by W. P. Smith of West Kenton. More than $100,000 is expected to be expended in drilling for gas and around $500,000 for the laying of about 30 miles of gas line. This work will start as soon as weather conditions will permit.

CENTRAL OHIO

Owing to weather conditions, the Central Ohio Field failed to show its usual number of completions weekly and work may slacken some during the next few weeks, but 16 new locations have been staked, while in new wells drilling there are 24, making a total in new work of 40. There were 13 wells completed, 3 being old wells with an initial production of 52 bbls., 4 dry holes and 6 gas wells.

Ashland County, one of the most active in the field, had but one completion reported, M. and S. Bartner's test on the John Obrecht farm, Section 36, Vermillion Township, showing an initial volume of slightly better than 1,000,000 feet. The Logan Gas Co. is drilling on another of the John Obrecht farms, same section. In Orange Township, the Kemrow Co. is drilling No. 3 on the James M. Fluke, Section 15, and made a location for No. 4 on another of James M. Fluke's farms, in Section 22. The Logan Gas Co. made a location for a second test on the Carl B. Jones farm, Section 22, same township. Same company made a location for a second test on the Nova Banking Co.'s property, Lot 97, Sullivan Township, same county, and the Ohio Fuel Gas Co. made a location for No. 1-3,462 on the A. L. Reed, Section 20, Jackson Township, same county. Robinson and others are drilling Nos. 9 and 10 on the W. E. Strine farm, Section 20, Perry Township, in the Jeromesville area of the same county, and are being drilled for Berea sand oil. Jones and others are drilling No. 3 on the J. J. Winbigler farm, Section 4, Mohican Township.

In Medina County, York Township, Miller Longfellow's No. 3 on the Earnest Fahrian farm, Section 18, found 25 feet of Berea sand, but no oil showing in the sand it goes as a dry hole.

Lorain County

In Lorain County, Grafton Township, the Ohio Fuel Gas Co. is starting the drill at No. 1-3,345 on the Jacob Haury and others property, Lot 91. Same company made a location for No. 1-3,463 on the Julia A. Clark farm, Section 13 and 18 Carlysle Township.

In Wayne County, the Kemrow Co. is drilling No. 7 on the Calvin Fry farm, Section 14, Wooster Township. Ohio Fuel Gas Co. made a location for No. 3-3459 on the Sarah Landis farm, Section 9, Chester Township.

In Holmes County, Monroe Township, the Arkansas Fuel Oil Co.'s No. 2 on the John T. Patterson, Lot 12, found a fairly nice gas well along with about 2 bbls. of oil a day. Ohio Fuel Gas Co. is drilling No. 1-3372 on the Thomas Horn farm, Sections 13-18, Hardy Township. Same company made a location for No. 1-3461 on the A. F. Kilgore farm, Section 5, Salt Creek Township. East Ohio Gas Co. made a location for No. 3 on the C. O. Ledbetter, Section 14, Richland Township. Logan Gas Co. started drilling No. 1-3071 on the Henry Fritz farm, Section 33, Paint Township, same county.

In the Cleveland Field, Cuyahoga County, in Olmstead Township, L. M. McGrath is drilling on the George Pilgrim farm, Lot 30.

In Richland County, Monroe Township, the Ohio Fuel Gas Co. staked locations for No. 1-3456 on the H. H. Farris, Section 20, and No. 1-3455 on the Fred Mengert farm, Section 29.

In Knox County, Brown Township, the Ohio Fuel Gas Co. failed to find a pay sand in No. 1-3369 on the J. E. A. Mix farm, Section 19, and goes as a dry hole. Same company made a location on the J. A. Reed farm, Section 11. The Upham Gas Co. brought in a fair gas well in No. 4 on the Robert J. Kinkel, Section 6.

In Coshocton County, Monroe Township, the Ohio Oil Co. is drilling on the Ellis McKelvey farm, Section 10. Ohio Fuel Gas Co. made a location on the Cornelia B. A. Corry farm, in the third-quarter of Franklin Township.

In Licking County, Fallsburg Township, the Wittmer Properties, trustee, made a location for a second test on the Helen Kidwell farm, Section 24, and Wigdon and Merchant, made a location for No. 4 John W. Little, Section 8. Emerald Petroleum Co. is drilling No. 3 on the John E. Martin farm, Section 10. In Bowling Green Township, the Ohio Fuel Gas Co. is drilling deeper its No. 1-1538 on the Noah Johnson, Section 16. In Perry Township, Hulse & Kundtz are drilling No. 7 John Chaney farm, Section 1, and McClay Brothers are drilling No. 1 Emmett Hoover farm. The Pure Oil Co. is drilling a second test on the Henry Loughman, Section 1, Hopewell Township.

Muskingum County

In Muskingum County, Perry Township, the Ohio Fuel Gas Co. made a location on the E. H. Berry, Section 3. Hope Construction & Refining Co. is drilling No. 5 W. E. Helphrey, Section 6, Jackson Township, W. Hunter Atha is drilling on the Allied Coal Co.'s land in Washington Township, same county.

In Athens County, Ames Township, the Ohio Fuel Gas Co. brought in a nice gas well in No. 5-3,338 on the J. E. Gifford farm, Section 2. The gas pay was found in the lower Berea sand at from 1,469 to 1,493 feet and drilled to a total depth of 1,500 feet. Orondorff and others struck a light gas well at No. 3 on the Linna Dean farm, Section 2, also in the lower Berea at from 1,314 to 1,333 feet, total depth, 1,345 feet. In Berne Township, the Ohio Fuel Gas Co. is drilling No. 1-3,433 on the Guy H. Kasler farm, Section 33. Same company drilled a dry hole in No. 2-3,317 on the George M. Jones farm, Fractional Section 1, Trimble Township, same county. In this well broken sand was found from 3,784 to 3,828 feet, the Medina sand being found at from 3,864 to 3,884 feet, neither formation showing oil or gas, and is dry. The Glouster Oil & Gas Co.'s test on the Henry Angle farm, in Fractional Section 3, same township, was also dry in the Berea sand at from 1,023 to 1,045 feet, where water was drilled into.

In Meigs County, the Wehrle Co.'s second test on the David B. Cross, Section 17, Sutton Township, produced 25 bbls. initial from the second Cow Run sand at from 580 to 602 feet and drilled to a total of 610 feet. In Bedford Township, the Ohio Fuel Gas Co. is drilling No. 1-2,964 on the William Hunter, Section 20.

In Jackson County, Lick Township, it looks very much as though the Ohio Fuel Gas Co. has a duster in No. 1-3,263 on the J. A. Ford farm, Section 23. Nothing worth while was found in the sand from 2,628 to 2,642 feet. The top of the Medina was at 2,683 feet and drilled to 2,686 feet and shut down. Same company is drilling No. 1-3,417 on the John C. Washburn farm, Section 18, Milton Township, same county, and abandoned its location for No. 4-3,439 on the Ida E. Jones farm, Section 23, Franklin Township.

Vinton County

In Vinton County, Vinton Township, Townsend and others brought in a nice gas well on the Lee H. Quick farm, Section 6, in the lower Berea sand at from 1,042½ to 1,043½ feet. J. A. Robinson and others made a location on the Christ Herrold farm, Section 3, Elk Township, same county.

In Gallia County, Addison Township, Halstead and Kenney are drilling on the Johnie Brothers farm, Section 15.

In Guernsey County, the Gordon Co.'s test on the Virgil Ross farm, Section 7, Cambridge Township, is estimated at 25 bbls. in the Lima sand at from 3,423 to 3,434 feet. The top of the Niagara lime was found at 3,290 feet. Craig and Sole are drilling on the John T. Moore farm, Section 7, same township. In Wheeler Township, the Ohio Fuel Gas Co. is drilling No. 2-3074 on the W. J. Alloway farm, Section 10, while Blackstone and others made a location on the Wilber Wilson farm, Section 11. In Adams Township, T. V. McLaughlin's No. 3 on the Mary Pozzo farm, Section 19, is a very light gas well in the Berea sand at from 1,052 to 1,075 feet.

Morgan County

In Morgan County, five gas wells are reported since the last review, the best of which is the Penn Contracting Co.'s second test on the C. A. Ewart farm, in Fractional Section 5, Marion Township. The gas was found in the Salt sand at from 734 to 743 feet, and estimated close around 10,000,000 feet. Choquill and others' No. 4 on the George Johnson farm, Section 21, is also a good gas producer from the lower Cow Run sand at from 722 to 723 feet. Ohio Fuel Gas Co. also has a nice gas well in No. 1-27,600 on the Ed Hammond farm, Fractional Section 34, in the Salt sand at from 741 to 745 feet. Same company made a location on the F. J. Strode farm, Section 30, and for a second test on the Hugh Ellis farm, Lot 5, same township. The Kemrow Co. has a light gas well in No. 4 on the H. D. Hoffman farm, Fractional Section 29, in the lower Berea sand at from 1,620 to to 1,640 feet, total depth, 1,643 feet, and the same company has another light gasser in No. 5 on the H. D. and S. E. Hoffman, Fractional Section 35, in the same formation from 1,539 to 1,567 feet, total depth, 1,570 feet.

In Hardy Township, Holmes County, the East Ohio Gas Co.'s No. 4 on the F. M. Nowells farm, Lot 7, is reported as good for 80 bbls. initial production.

In Perry Township, Licking County, the Preston Oil Co.'s No. 12 on the James Wright, Section 16, produced an initial of 10 bbls. from the Berea sand.

In Jackson Township, Muskegon County, the Hope Construction & Refining Co.'s No. 4 W. E. Helphrey, Section 6, had an initial of 190 bbls. from a depth of from 3,044 to 3,098 feet.

In Sutton Township, Meigs County, Tyree and others' second test on the Martin Ebenback, Section 13, is reported a 4-bbl. initial pumper.

ILLINOIS

Despite the weather activity is continuing in the prospective area in Saline County, near Harrisburg, in the southeastern part of Illinois, where a well was drilled recently on the Smith farm reported good for 80 bbls. but the owners are not doing anything with the well in the way of getting the production as there is no outlet for the crude. A large amount of lease work has been done in the county and the owners of the discovery well are awaiting the completion of a couple more wells in the vicinity and if they show as good as the discovery well on the Smith farm, arrangements will be made immediately for the piping of the crude to the Big Four Railroad, 3 miles distant, and construct a loading rack and getting the oil to market. The well now nearing the pay sand is on the Lockwood farm, where the drilling con-

(Continued on Page 115)

MEXICO'S PRODUCTION THIS YEAR LIKELY TO BE 10,000,000 BBLS. LESS

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Foreign Oil Department, Henry L. Doherty & Co.

Mexican petroleum production for 1928 was approximately 49,800,000 bbls., the lowest in 12 years, showing a decrease from 1927 of over 14,000,000 bbls. The steady downward trend for the past seven years has allowed Russia to outrank Mexico by a wide margin for third position and if the expected decline continues during 1929 it should place Persia ahead of Mexico as fourth in rank.

The year 1928 was characterized by a continuation of the re-entrenchment previously begun by the oil industry in Mexico in an attempt to adjust itself to the adverse conditions caused by the steady depletion of the fields, the rapidly increasing competition from Venezuela and the United States and the as yet unsettled petroleum legislation and taxation situation. With the exception of the Isthmus of Tehuantepec, drilling in proved fields was considerably curtailed and although the number of wildcats completed exceeded those of the previous year, no extensive drilling programs were undertaken. Practically without exception, the major companies reduced personnel and operations to a point where they could meet existing conditions and mark time while awaiting a more stable basis for the future testing of unexploited regions. Many terminal and transportation facilities were abandoned during the year.

Development

Only 371 wells were completed during 1928, as against 583 in the previous year and 808 during 1926, and although the percentage of producers in 1928 was 34 per cent, compared to 26 per cent in 1927, the initial production of wells was considerably lower than during the previous year, a great number of the wells showing salt water and becoming "strippers" from the time they started to flow. Development is summarized in Table 1.

Drilling in the northern fields did not prove any new pools of importance, the most successful wells being located in the old producing areas of Cacalilao, Panuco and Topila. Very few of the producers made more than 1,000 bbls. daily, and a great many less than 300 bbls. a day.

TABLE 1
Petroleum Development in Mexico, 1928

Northern Fields—	Failures	Producers	Ttl.
Panuco	44	34	78
Topila-Caracol	33	17	50
Chapacao-Corcovado	8	2	10
Salinas	12	1	13
Cacalilao	51	17	68
Limon	7	0	7
Altamira	7	0	7
Quebracha	2	0	2
Total	164	71	235
Southern Fields	43	28	71
Isthmus of Tehuantepec	23	28	51
Wildcats	13	1	14
Grand total	243	128	371

Results in the outlying districts of the northern fields, such as Limon, Altamira and Quebracha, were very discouraging, and not one well could be termed a commercial producer. Drilling in Salinas and Corcovado resulted in only three small "strippers" out of 23 wells drilled, and at the end of the year there was not a promising extension of the northern field in sight.

Southern Fields

In the southern fields only 46 wells were completed along the flooded portion of the "Golden Lane" from Dos Bocas to Alamo, and of this number 15 were small "strippers" and the remainder dry or salt water wells. Drilling was quite active in the southern extension of the Dos Bocas-Alamo fault from Alamo to San Isidro and of the 25 wells drilled, 13 were producers, a few of which were rated at 5,000 bbls. a day. It was necessary to handle carefully these wells, as salt water soon appeared if the flow was not restricted. None of the wells drilled further extended the Dos Bocas-Alamo fault southeast of San Isidro. Two unsuccessful tests were made in the Tamiahau Lagoon in an effort to extend the Dos Bocas-Alamo fault to the north.

Perhaps the outstanding feature during the year was the completion of a producing well in Mecatepec, in wildcat territory about 10 miles north of the old Furbero Field and 30 miles south of Alamo. The well encountered an initial flow of about 7,000 bbls. daily at a depth of 3,608 feet, but by the end of the year there had not been sufficient additional development to determine whether or not the well had discovered an important new pool.

A total of 14 wildcat wells were completed during 1928, which was twice the number of the previous year, but, with the exception of the Mecatepec well, all were failures. A dry hole was completed in granite at a depth of 3,314 feet, near San Marcos in central Coahuila, and another interesting dry test was drilled to a depth of 1,782 feet near Zambrano in northern Coahuila not far from the United States border. Two dry holes were drilled in Chocoy north of Atlamira, and another on Magascatsin west of Chocoy. Eight tests were made north and west of the Dos Bocas-Alamo fault in the south field, all of which were unsuccessful.

The Isthmus of Tehuantepec showed a big increase in drilling activity in 1928, 51 wells being completed as against 24 in 1927. A total of 38 wells were drilled in the Filisola Field and other proven areas, 23 of which were small producers. The additional production of these wells was sufficient to hold the daily average of the fields to approximately 7,000 bbls. throughout the year. A total of 13 wells was drilled in extensions of the proved area, 5 of which were producers. At the end of the year nine wells were drilling in the Isthmus region.

Production

Table 2 shows production in 1928 compared with that of the previous year:

TABLE 2
Ptroleum Production in Mexico, 1927, 1928

Fields—	1927, bbls.	1928, bbls.
Northern (12° Be.)	38,900,000	25,400,000
Southern (21° Be.)	22,600,000	21,900,000
Isthmus of Tehuantepec (32° Be.)	2,700,000	2,400,000
Total	64,200,000	49,700,000

The production of the northern fields declined steadily in all the pools from 80,000 bbls. daily in January to 58,000 bbls. in December. During January, 1928, the daily average production per well was 124 bbls. and in December only 95 bbls.

The production in the southern fields declined from 67,000 bbls. daily in January to 50,000 bbls. in December. At the beginning of the year, new wells in the southern extension of the Dos Bocas-Alamo fault from Alamo to San Isidro promised an increased production of light crude during 1928, but serious salt water invasion in this area during March and April greatly depleted the flow of the larger wells. Production in the older pools from Tepetate to Alamo declined steadily throughout the year.

In the Filisola Field in the Isthmus of Tehuantepec, production was maintained at an almost constant level. The production of old wells declined, but the addition of several small producers maintained the production to approximately 6,500 bbls. daily, which was increasing slightly toward the end of the year.

Oil in Storage

Actual figures of oil stocks in Mexico were not available at the end of the year, but estimates from consumption, exports and production show that approximately 1,000,000 bbls. were added to Mexican storage during 1928. Heavy crude stocks increased about 2,000,000 bbls., while light crude storage decreased 1,000,000 bbls. There was but little change in the stocks of other grades.

Table 3 shows oil stocks by grades on January 1, 1928, and the estimated storage on January 1, 1929):

TABLE 3
Mexican Oil Stocks, January 1, 1928, 1929

	Jan. 1, '28 bbls.	Jan. 1, '29 bbls.
Heavy crude (12° Be.)	4,600,000	6,500,000
Light crude (21° Be.)	3,000,000	1,700,000
Topped (17° Be.)	5,100,000	5,700,000
Refined products	1,100,000	900,000
Total	13,800,000	14,800,000

Mexican government reports show that in 1927 there were 2,296 steel tanks in Mexico with a total capacity of approximately 60,000,000 bbls. These figures include many terminals and stations that have been abandoned, and it is probable that steel tanks now in condition to store oil have a total capacity of not over 25,000,000 bbls.

Imports

During 1927 one of the major companies engaged in refining in Mexico and producing in Venezuela, imported Venezuelan crude for refining purposes. By the beginning of 1928, however, imports of crude had entirely ceased, and the only imports were small amounts of gas oil into Tampico and Vera Cruz, and small shipments of gasoline and lubricants into the West Coast and across the United States border.

Exports

The decrease in exports during 1928 was greater than the decrease in production, totaling approximately 36,000,000 bbls. or 16,000,000 less than the previous year. Heavy crude exports decreased 8,000,000 bbls. and fuel oil shipments were less than one-half of 1927 exports, or 7,000,000 bbls. For the first time in three years light oil exports increased, totaling 1,000,000 bbls. The export of refined products in 1928 also increased, being 1,000,000 bbls. greater than during the previous year. Exports in 1928 are shown in Table 4.

TABLE 4
Exports of Mexican Petroleum, by Grades, 1928

	Bbls.
Heavy crude (12° Be.)	18,800,000
Fuel oil (17° Be.)	7,000,000
Light crude (21° Be.)	1,100,000
Distillates	5,100,000
Asphalt	1,800,000
Bunkers	2,200,000
Total	36,000,000

Exports to the United States aggregated approximately 26,000,000 bbls., or about 73 per cent of the total, while during 1927 they totaled 36,000,000 bbls., or about 70 per cent of the shipments for that year. Shipments to Cuba, West Indies and South America were about 4,000,000 bbls. less than during the previous year. Exports to Europe were also less than in 1927. Grades of oil shipped to the United States consisted mostly of heavy Panuco crude and fuel oil, while the greater part of those to other countries were distillates and other refined products.

During 1928 further abandonment of sea-loading terminals on the Panuco River took place and at the close of the year 95 per cent of the oil shipped from Tampico was loaded out of only six terminals.

Domestic Consumption and Refining

Domestic consumption for 1928 is estimated at about 12,000,000 bbls. or about 2,000,000 bbls. less than the previous year, of which approximately 7,500,000 bbls. went to interior consumption and the balance for local field use. The decrease in domestic consumption was due largely to curtailment of operations in the fields and terminals. Table 5 is an estimate of domestic consumption based on the distribution of domestic consumption for the previous years by grades for 1928:

TABLE 5
Domestic Consumption of Mexican Petroleum, 1928

Grade—	Local field and operation consumption bbls.	Railroad automobile and interior consumption bbls.	Ttl. bbls.
Light crude	200,000	10,000	210,000
Heavy crude	1,300,000	2,000,000	3,300,000
Gasoline	50,000	1,000,000	1,150,000
Kerosene	40,000	250,000	290,000
Gas oil	1,300,000	100,000	1,400,000
Fuel oil	1,100,000	4,000,000	5,100,000
Lubricants	10,000	100,000	110,000
Other prods.	500,000	40,000	540,000
Total	4,500,000	7,500,000	12,000,000

Oil refined in Mexico was approximately 6,500,000 bbls. less than the previous year, or about 25,700,000 bbls. It is of interest to note that despite the big decrease in the amount of crude run, the output of distillates and other refined products was over 10,000,000 bbls., or greater than last year, while the amount of fuel oil turned out by refineries was over 7,000,000 bbls. less than in 1927. There was a large decrease in the amount of heavy crude run through domestic refineries.

At present there are but two large refineries and one small unit operating in Tampico, which, with the plant at Minatitlan that runs the light oil production of the Isthmus of Tehuantepec, are the only refineries operating in Mexico. Table 6 is an estimate of the quantities of crudes run through refineries and products obtained during the year:

TABLE 6
Throughput and Output of Mexican Refineries, 1928

Crude Oil Refined	Bbls.
Oil refined—	
Heavy (12° Be.)	1,400,000
Light (21° Be.)	1,900,000
Isthmus of Tehuantepec (32° Be)	2,400,000
Total	25,700,000
Refined products—	
Fuel oil (17° Be.)	14,300,000
Distillates and other refined products	10,400,000
Losses, etc.	1,000,000
Total	25,700,000

Market Conditions

At the close of 1927 the rapid increase of Venezuelan production and the overproduction in the United States began to affect the market for Mexican crudes, especially the heavy Panuco crude of the northern field and by the middle of the year the price of Panuco crude had fallen to $1 per barrel f.o.b. ship, the lowest figure in four years. Notwithstanding the rapid decrease in Panuco crude production, its price continued to decline and by the end of the year spot cargoes were selling in Tampico for 90 cents f.o.b. ship.

In the southern field or light oil district two companies were sole buyers and transporters of this grade of crude. Throughout the year small independent producers received from 50 cents to 60 cents per barrel at the well, the price of this grade of crude (21 degrees Baume) being less than that offered for the heavy Panuco crude (21 degrees Baume) in the northern fields.

Production in the Isthmus of Tehuantepec is controlled by one company and is utilized by its refinery at Minatitlan in the State of Vera Cruz.

The Mexican domestic market continued to be controlled chiefly by the two companies operating refineries in Mexico. Other companies imported small amounts of gasoline and lubricants from the United States in tank cars and succeeded in creating some competition to the local refiners, especially near the United States border and along the west coast of Mexico.

Because of insufficient production from their own wells, the National Railways was forced to purchase the greater part of its supply of fuel oil from outside producers.

Taxes

Table 7 shows the variation of rates of taxation on oils exported, in dollars, per United States barrel:

TABLE 7
Mexican Oil Tax Rates, September 1927, 1928

Grade—	Taxes, dollars per bbl. Sept., 1927	Sept., 1928
Heavy crude (12° Be.)	$0.17	$0.14
Light crude (21° Be.)	0.31	0.22
Fuel oil (17° Be.)	0.27	0.19
Gas oil	0.36	0.28
Refined gasoline	0.25	0.27
Crude gasoline	0.50	0.54
Refined kerosene	0.14	0.16
Crude kerosene	0.27	0.30
Lubricants	0.29	0.29

As the taxes are based on price quotations of oil in the United States, the tax figures for September, 1928, on crudes, fuel oil and gas oil are somewhat lower than for September of the previous year, although the decline of the selling price of the Mexican heavy crude, for instance, has been more pronounced than the reduction in taxes. The figures in Table 7 do not include minor taxes which aggre-

*Before A.I.M.E., New York meeting.
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gate approximately 2 cents additional per barrel.

Table 8 gives the total yearly taxes paid to the Mexican government on oil shipped from Mexico since 1919. These figures do not include minor taxes of approximately 2 cents per barrel which aggregate about $20,000,000 additional.

TABLE 8
Oil Taxes Paid to Mexican Government, 1919-1928

Year—	Taxes
1920	$22,740,000
1921	31,562,000
1922	42,990,000
1923	30,268,000
1924	27,311,000
1925	21,072,000
1926	17,411,000
1927	9,512,000
1928 (estimated)	6,000,000
Total	$208,866,000

During the latter months of 1928, a tax discount was being considered on oil produced from new zones at a given distance from the sea coast in order to encourage development in new territory in the face of competition from other countries like Venezuela, with little or no taxation, but the year closed without a final agreement on the amount of tax discount or the exact limits of the new zones.

A reduction of approximately 35 per cent on personal income taxes affecting wages, salaries, etc., was made effective in January, 1928, thus reducing the prohibitive tax rates on personal incomes that were established in August of the previous year.

Outlook for 1929

A careful analysis of the various factors affecting the industry in 1928 shows that these will continue to be effective through 1929, and that they will be felt possibly throughout 1930. It is very probable, therefore, that the present policy of curtailed development will continue during 1929. Development on the Isthmus of Tehuantepec may increase on a small scale and some increased activity may result in Mecatepec should wells drilling in the vicinity of the discovery well prove a more extensive pool, but in the old pools of the northern and southern fields production should continue to decline because of the rapidly decreasing productivity of the wells, the low prices received for the production and the high taxation as compared with practically tax-free oil from competitive fields like Venezuela.

It is probable that wildcatting may increase slightly in 1929, and that exploration in new territory will go ahead on a very conservative basis until pending questions relating to taxation and the new petroleum law are settled and it can be seen that Mexican oil can be produced at a profit, in competition with other fields.

Any estimate of production from Mexican fields for a year in advance is hazardous, and it must be kept in mind that such estimating has for its basis the past producing history of the fields and the present status of development and production as well as the general conditions influencing them. With such limitations in mind, it is estimated that production in Mexico for 1929 will be about 10,000,000 bbls. lower than in 1928. The production of heavy oil for 1929 should, therefore, be about 19,000,000 bbls., a decrease of over 6,000,000 bbls. in 1928, and the output of light oil about 17,500,000 bbls. for 1929, or 4,000,000 bbls. less than the previous year. Production of the Isthmus of Tehuantepec should aggregate about 2,500,000 bbls., bringing total estimated production for Mexico to approximately 39,000,000 bbls.

The above estimates do not take into account the possibility of new pools such as Mecatepec, which may account for wells of large initial production.

OIL DISCOVERY IN HUNGARY

Drilling in the neighborhood of Karoag has proved the existence of a layer of sand diffused with oil at a depth of 120 meters, and in the opinion of the government experts similar layers must exist elsewhere in the Hungarian lowland. It is intended to extend the drilling to other districts.

MUCH WORK ON CORROSION PROBLEM IN PROGRESS IN LABORATORIES

By F. R. Staley*
Chief Chemist, Texas Pacific Coal & Oil Co.

The corrosive properties of West Texas crude oil has greatly stimulated the study of this problem during recent years. The foremost technologists of the petroleum, paint, and iron and steel industries have been working on the corrosion problem and, although much progress has been made, much is yet to be accomplished. Many injuries and deaths occurred in the fields and in the refineries in handling these crudes before the safety engineer was called upon to study the hazards and the proper methods of protecting the working men against the dangers involved. Corrosion is not only an economic problem but its significance is of utmost importance to the safety director and engineer. It presents many hazards causing explosions, fires and accidents which often result in injury and death. The sulphur compounds in petroleum unite under certain conditions with iron, forming iron sulphide. When this is exposed to air, it may generate heat rapidly enough, due to oxidation, to cause a fire or explosion when petroleum vapors are present. Corrosion attacks metals and weakens construction below the point of safety. It destroys insulation and supports for electrical lines, causing short circuits and other hazards. Equipment that is subjected to severe corrosive action must be frequently inspected by competent engineers to maintain satisfactory safety conditions for the men working with such equipment.

In the storage, transportation and refining of sour crudes, there are specific problems. In the refinery high temperatures and pressures are used while in the field atmospheric and soil conditions are important considerations. The refiner of sour crude is compelled by competition to meet the present day gasoline specifications and to compete economically with products produced from sweet crudes. Each individual refiner has particular corrosion problems peculiar to the process he uses.

Corrosive Action

The corrosive action of West Texas crude is due to the sulphur compounds it contains and to the chlorides of magnesia and calcium which might be carried in suspension. Egloff and Morrell have shown that the corrosive action of these crudes is not directly related to the total sulphur content but rather to the type of sulphur compound present. The sulphur content of these crudes varies in amounts up to almost 3 per cent and of two crudes the one showing considerably less sulphur may be considerably more corrosive. The sulphur occurs in the crude as elemental sulphur, hydrogen sulphide gas in solution, and complex sulphur compounds.

The phenomenon of corrosion is extremely complex and so many different types of compounds are involved as well as different conditions met in actual practice that no general solution has been devised yet. It has been found that metallic structures subject to stress or strains corrode more rapidly than test plates subjected to corrosive action only. Engineers must take this fact into consideration in designing equipment. In the protection of iron and steel materials various coatings have been developed for specific conditions. These include different kinds of paints and films, as well as electro-plating of surfaces with corrosion-resistant metals. Metallurgists have developed new alloys to be used for high temperatures and pressures. The use of chromium alloys and aluminum has become popular wherever the installation is economical. Aluminum is not attacked by hydrogen sulphide.

A.S.T.M. Report

The American Society of Testing Materials has issued a very interesting report on chromium alloys for resisting corrosion. They divide these alloys into seven groups:

Group 1. Known as Stainless Steel. Contains 12 to 16 per cent chromium and over .02 of a per cent of carbon. This type is used for cutlery and heat treated parts having general corrosion resistance and resistance to wear and abrasion.

Group 2. Known as Stainless Iron. Has following composition: Chromium, 12 to 16 per cent; carbon, less than .12 per cent. Stainless iron has good corrosion resistance to many agents which readily attack iron and steel and nonferrous alloys. This material is generally furnished in sheet form.

Group 3. This group is also called Stainless Iron and contains: Chromium, 16 to 20 per cent; silicon, one-half to 1½ per cent, and carbon, less than .12 per cent. The high silicate content in this group facilitates the welding of this material.

Group 4. Stainless Iron which has the following composition: Chromium, 17 to 25 per cent; nickel, 7 to 12 per cent. Stainless irons of this type are not subject to brittleness at high temperatures.

Group 5. High Chromium-High Nickel: Chromium, 7 to 25 per cent; nickel, 17 to 22 per cent; silicon up to 3 per cent. These alloys are developed to meet certain special needs in the industry.

Group 6. High Chromium Alloys. They contain: Chromium, 20 to 30 per cent carbon, less than .3 per cent. These alleys are characterized by great resistance to chemical corrosion and to oxidation at high temperatures.

Group 7. Castings. Several grades of high chromium castings are on the market and contain appreciable quantities of nickel or silicon or both. They are used for the resistance to corrosion, heat or abrasion and the composition is determined by their use.

Chromium Plating

Last year the use of chromium plated reaction chambers was first practiced with success on the Pacific Coast to combat corrosion caused by sulphur-containing oil. Considerable progress has been made in chrome plating and it can now be used wherever economical.

Aluminum

The use of aluminum alloys in combating corrosion is becoming popular. To quote the Chemical Engineering Magazine (January, 1929), "The electrochemical behavior of Alcad has made it of chemical engineering interest. In this product surface layers of pure aluminum are rolled on strong aluminum alloy sheets in such a way that the corrosion resistance of the pure aluminum is realized for the combination. The galvanic relation between aluminum and the alloy effect protection of the alloy at cut edges, and of alloy rivets used in conjunction with the sheet."

Protective Coatings

The research laboratories of the Universal Oil Products Co. have recently developed a protective covering of ceramic materials to protect cracking equipment from corrosion (The Oil and Gas Journal, December 6, 1928). The mixture consists of silica sand, water glass, asbestos fiber and water. Very favorable results were obtained by the use of this coating in the reaction chambers of cracking stills. The coating is also resistant to the action of acids and alkalis. Various concentrations of sulphuric acid from 10 to 95 per cent and of sodium hydroxide solutions from 5 to 25 per cent did not weaken the coating.

Numerous protective coatings and paints have been developed by the paint and chemical industries to combat or to protect against corrosion. Many of these products show considerable merit when properly applied. In general, it is necessary to apply the coating to fresh sand-blasted surface. It is also necessary to apply a thick enough coating to furnish adequate protection. Special coatings are recommended for specific conditions.

In addition to the corrosion caused by sulphur compounds in West Texas crudes, corrosion due to brines containing chlorides of magnesia and calcium are encountered. At ordinary temperature electrolytic action causes corrosion. This phenomenon is produced when two dissimilar metals are exposed to a solution containing salts, acids or alkalis. One of the metals (usually the iron) is decomposed. In a distillation process magnesium chloride is decomposed at high temperatures, forming hydrochloric acid in contact with steam, which rapidly corrodes iron and steel. The refiner combats this by the injection of caustic soda or other alkali to neutralize the acid. Most refineries use sulphuric acid in treating petroleum fractions. Lead lined agitators are used for this purpose, and bronze pumps and lines are used to handle the sludge.

Hydrogen Sulphide Gas

From the standpoint of safety, hydrogen sulphide gas is one of the most dangerous hazards encountered in handling West Texas crudes, and its corrosive action on metals is one of the most difficult to combat. It might be well at this point to mention some of the properties of this compound. Hydrogen sulphide gas can be distinguished by its foul odor. It has a specific gravity of 1.19 compared with air. It is soluble to the extent of three to four volumes in one volume of water at atmospheric temperatures forming an acid solution. It is easily ignited forming water and sulphur dioxide, the latter being soluble in water forming sulphuric acid. When the supply of air for combustion is limited water and free sulphur are formed. Hydrogen sulphide acts upon metals and their oxides by the metal replacing the hydrogen, forming metallic sulphides.

In conclusion, it can be stated much work on the corrosion problem is still in progress by the research laboratories in many industries and by several of the government bureaus. Many methods of combating this menace are being developed. However, there are always individual problems peculiar to a given installation or plant that must be given intelligent study and care to minimize the corrosion losses both for humanitarian and economic reasons. The safety director, the chemist, and the engineer, as well as every oil field or refinery workingman must co-perate in order to successfully solve the corrosion problem.

*Before Texas division, National Safety Council, Midland, Tex.

CHANGES IN CRUDE OIL BY SOLUTION OF GAS

Crude oils are capable of dissolving quantities of gas under pressure. Questions have arisen, however, as to the effects of gas in solution upon the characteristics of the oil. Previous investigations show that gas in solution in an oil affects the viscosity and surface tension of the oil, but the effects on the volume of A.P.I. gravity of the oil have not been shown.

Experimental work pertaining to the solubility of gas in oil, conducted by the Department of Commerce, in the oil recovery laboratory of the United States Bureau of Mines, Bartlesville, Okla., shows that decided increases in volume and in A.P.I. gravity of the oil are caused by the solution of gas in the oil under pressure. Conversely, decided decreases in volume and in A.P.I. gravity of the oil were found to take place concurrently with the liberation of gas from solution and the diminution of gas pressures.

The phenomena produced by dissolving gas in oil or liberating gas from oil which were observed in the experimental work have an important bearing on oil recovery experiments, oil field production problems, and the estimation of underground reserves.

The experimental findings of the Bureau of Mines, which are described in Serial 2,893, recently issued, may indicate conditions comparable to those encountered in producing oils from sands. However, more experimental work must be performed, using different oils and different gases, and all of the experimental data must be compared and reconciled with field conditions before definite conclusions can be reached regarding the actual effects of the solubility of gas in oil.

PRESENT SITUATION IN COLOMBIA; PRESIDENT WANTS RIGHTS DEFINED

By James Terry Duce*
Geologist The Texas Company

No important producing developments took place in Colombia during the year 1928. This was at least partly due to the paralysis of operations by the passage, during the latter part of 1927, of a law which was regarded by the oil companies as confiscatory and unjust, and the promulgation of exceedingly stringent regulations of this law under decree No. 150, published January 28, 1928. This decree, which contained 24 articles, practically prevented not only producing operations by the oil companies but even such activities as geological explorations and surveying, as severe fines were imposed for the possession of maps not registered with the Ministry of Industries. Both this regulatory decree and the law were subject to attack in the courts by several of the oil companies. Representations were also made by the United States Government against its enforcement and the regulatory decree was suspended May 22 by Presidential proclamation, until the suits against it are decided by the Supreme Court and Council of State.

Though another law was introduced into the Colombian Congress at a later date, no action was taken on it, and at the time of the writing of this paper, it would appear that no oil bill will pass the Colombian Congress during the present session.

The Barco concession, which was revoked in February, 1926, still continues an unsettled matter, although there have been rumors that the Government was attempting to come to some decision on this rather difficult question. A hopeful sign toward the close of the year was the settlement of negotiations with the Tropical Oil Co. over the acceptance of the payment for royalties due the Government from that company. This settlement, which covered a royalty on crude oil produced from June 30, 1926 to June 30, 1928, represented a cash payment for approximately 3,000,000 bbls.

President's View

It is to be hoped that during the coming year the Colombian government will see its way clear to clarify its position on petroleum legislation. A good augury for the future was the statement made by President Abadia Mendez on New Year's Day, in which he courageously admitted the errors of previous legislation and said, regarding oil, "Very soon legislation on this subject will clearly define and guarantee the rights of all on the basis of a religious respect for private property and the exploitation of the legitimate reserves of the State without the fear of such odious exactions in the way of fiscal regulation as will dry up the spring from which flows this wealth."

The Colombian Government should realize that an oil industry that will bring revenue to the country cannot be built up without the passage of such legislation as will guarantee to the oil companies investing money in such developments, reasonable security of tenure of the properties that they may acquire, and reasonable freedom from governmental interference. It can well afford to do this without losing, in any way, its police power, and at the same time it will profit materially by the founding of an industry that will bring into the country badly needed money.

The only producing company in Colombia during the past year was the Tropical Oil Co., which had produced 19,895,677 bbls. of crude oil up to December 31. The 1928 figures include natural gasoline production amounting to 198,879 bbls. for the first 10 months, or approximately 240,000 bbls. for the year. All of the natural gasoline is mixed with the crude oil, put through the pipe line and exported from Colombia.

The following refined products were produced at the refinery at Barranca Bermeja during the first 10 months:

	Barrels
Crude run	1,227,132
Gasoline	208,962
Kerosene	53,527
Gas oil	24,051
Fuel oil	928,112

Pipe Line Runs

The average daily pipe line runs to the coast were 50,576 bbls.; the number of wells completed up to December 31 was 115, with an average initial production of 843 bbls. About 24 rigs were operated during the year. Other companies operating in Colombia were as follows: The South American Gulf Oil Co., and the Colombian Syndicate. The South American company was operating two properties, one at Las Monas, where at the close of the year the company was drilling three wells and which stood at the last report as follows: No. 1-A shut down at 1,587 feet; No. 4 fishing at 3,838 feet; No. 5 drill stem stuck at 3,456 feet.

The Colombian Syndicate properties were drilling one well, No. 2 Ordonez, which was shut down on December 11 at 106 feet. The only other active operating company at the close of the year was the Richmond Petroleum Co., a subsidiary of the Standard of California, which was drilling two wells, No. 1 Galapa at 3,020 feet and No. 1 Repelon at 1,645 feet. Both of these wells had gas shows. The Magdalena Syndicate closed down both its operations, at El Nato and Malpaso, after having small shows that were not of commercial significance. These wells were shut down at 2,205 feet and 3,172 feet, respectively. The Lobitos Oil Co. abandoned its well in the Sogamosa district at 4,273 feet and withdrew from the country because of the oil legislation. A number of companies maintained some geological or legal staff within the country during the year. These included the Sinclair Oil Exploration Co., the Atlantic Refining Co., the D'Arcy Exploration Co., The Texas Company and the Bogota Syndicate.

The author wishes to thank A. M. McQueen of the International Petroleum Corp., William T. Wallace of the South Americal Gulf Oil Corp., W. B. Heroy of the Sinclair Exploration Co., Michael O'Shaugnessy of the South American Oil Reports, and Samuel Haskell of The Texas Company, all of whom furnished information upon which this paper is based.

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OIL SEARCH IN FRANCE

An extensive permit to search for oil and gas in four communes of the Pau arrondissement, and in two communes of the Oloron arrondissement, in the Basses-Pyrenees, has been granted to the Societe Bearnaise pour la Recherche et l'exploitation de la Potasse et du Petrole. Application for a similar permit covering areas in the same region has been lodged by the Societe Minere d'Athos. It is reported, on the other hand, that all prospecting in the Limagne plain, in the Auvergne department, has stopped; that the 10 permits which had been granted have been cancelled.

WILL LECTURE AT COLUMBIA

Dr. C. A. Heiland, professor of geophysics at the Colorado School of Mines, Golden, Colo., will give a series of lectures in geophysical prospecting at Columbia University, New York City. The courses will comprise torsion balance, magnetometer, seismograph, and electrical prospecting, and will be given from the beginning of February up to the middle of March. Doctor Heiland will also attend the annual meeting of the American Institute of Mining and Metallurgical Engineers. Following the lectures he will go to Fort Worth for the meeting of the American Association of Petroleum Geologists.

CONTROL OF FLUSH PRODUCTION AND DISPOSITION OF SURPLUS

By Joseph Jensen*
Geologist, Associated Oil Co.

California's most successful type of control was secured by the postponement of the development of deeper oil zones. In 1924 an agreement was made at Dominguez limiting the development to 400 feet of oil zone. In 1925 an agreement was made in the Inglewood Field limiting development to the first 1,300 feet of oil zone. The term of both of these agreements has ended but the good resulting from them may be expected to continue for the greater part of 1929, if not longer. California has also avoided a large quantity of oil by the complete shutting in of wells.

Practically all of the oil shut in in California was heavy oil. By this action the State avoided the production of approximately 42,000,000 bbls. During the preceding year the shut-in production was estimated at 25,000,000 bbls. of oil. Obviously the 42,000,000 bbls. of oil just mentioned also includes at least a third of the 25,000,000 bbls. held shut in the preceding year. The effective amount of production that was avoided during 1927 and 1928 probably amounts to 50,000,000 to 55,000,000 bbls. of heavy oil. Shutting in wells is usually only possible on lands owned in fee, but has been successfully applied for the past two or three years in the newly discovered and developed Round Mountain, Mount Poso and Fruitvale areas of California.

The very earnest attempt made in California to control flush production from the newly discovered deep sands at Santa Fe Springs met with failure although it was based upon sound and accepted engineering principles. In such a purely voluntary movement as attempted at Santa Fe Springs, there was lacking an adequate and satisfactory method of enforcing the program so as to assure those who refused to enter it that there would be full compliance. Besides a few operators "needed the oil." Past experience and this experience tends to demonstrate that any effort to control flush production in an intensively drilled townlot area will fail until this missing element is added to the co-operative method. Texas regulation of production was successful in pools producing from limestone where the wells made no sand. California wells are subject to a wide range in production when opened up and are in danger of injury from sand at such times.

One of the outstanding efforts at curtailment has been that effected in the Ventura Avenue Field by three operating companies even though two others refused to join with them. This movement was predicated upon a genuine desire to save gas and has been more successful because of the need of gas conservation than because of any attempt to control production.

Disposition of Surplus

While the three districts have each had a serious problem of overproduction to meet, it is interesting to note how each handled its surplus. In California gasoline was sold and the remaining fuel oil stored. In the Mid-Continent area, light oil was stored to the extent of approximately 19,000,000 bbls. East of California stocks of heavy crude showed little change during 1928. This indicates that Texas with its 500,000 bbls. per day of heavy crude disposed of its heavy oil in such a way as to compete satisfactorily with the light oils of the Mid-Continent.

No matter how pessimistic or discouraged one may feel about the threatened overproduction for 1929, or fearful that 1929 may be like 1927, the many efforts at curtailment have demonstrated a most commendable co-operative spirit within the industry. This work is now being undertaken with renewed effort. An understanding of the seriousness of the problem is bound to result in much good whether the final solution be in unit operation or in some other one of the many methods proposed. A few years ago any attempt at the regulation of wildcatting or the development of oil fields was frowned upon by the industry on the ground that it would destroy the initiative of the wildcatter. At the present time the industry is fully convinced a method of control must be created. The fear is not that the initiative of the wildcatter will be destroyed but that while it is unregulated the industry is being seriously injured.

Increased Use of Natural Gas

A second outstanding feature that has grown more apparent during the years 1927 and 1928, is the serious inroad which the use of natural gas is making upon the domain of fuel oil and coal. Pipe lines of large diameter and great length have been built and are being projected in many directions to communities in the Rocky Mountain States and in the Mississippi Valley. In California, the increase in the use of natural gas has been so great as to prevent any increase in the use of fuel oil during the past three years. The discovery of a new gas field in the San Joaquin Valley and the finding of the Kettleman Hills oil field indicates that the use of natural gas in central California will be rapidly extended. Consumption of natural gas in southern California displaces more than 40,000 bbls. of fuel oil per day. Not only is natural gas a competitor in industry with fuel oil and coal but it is also a competitor in the oil fields. About the only instance in which natural gas has been displaced is in cement plants using cracking still residuum. The many new gas lines projected or under construction for the year 1929 indicate that this sort of competition will continue for another three to five years throughout the country. If the discovery of new fields with the attendant gas continues, this same sort of competition will increase.

Gas Economy

The extensive use of the gas lift, the engineering discussions on gas-oil ratios and the widespread understanding of the importance of gas in producing oil are being rapidly advanced in California. This is due to the co-operative efforts of oil companies themselves first initiated in the Ventura Avenue Field and later fostered in 1928 at the instance of the Governor of the State of California. As the result of these efforts, large volumes of gas have been stored in old fields. Wasteful wells having high gas-oil ratios have been shut in, others have been pinched back, and withdrawing gas from the casingheads for field usage where the wells were shut in, has been discontinued. Approximately 140,000,000 feet per day are thus being conserved. This has been an approximate value of $10,000 to $14,000, and represents over 20,000 bbls. of fuel oil based on heating equivalents. These discussions have served to bring out very clearly the important part played by gas in increasing the recovery of oil in permitting its production at the lowest possible cost. They have served to bring out the fact that there is no possible substitute for, or other method of recovery of oil that can be as efficient as the judicious use of the gas found, associated with, and in solution in the oil.

The great economic value of the gas so produced has been emphasized. During the period of tremendous overproduction in 1923 little or no thought was given to surplus gas blown in the air. Saving gas in different ways is now under way in California. Similar action will follow in other districts throughout the United States, since both the oil company and the gas company will be interested in this work.

New Developments in 1928

Each new discovery in the past few years has taught a lesson that led to many other new discoveries. This is

*Before A.I.M.E. New York meeting. Published by permission of J. A. Taff, chief geologist, Associated Oil Co. Copyright, 1929, by the American Institute of Mining and Metallurgical Engineers, Inc.

illustrated by the discovery at Seminole in 1926, the entrance into West Texas in 1921, and the discovery of oil by deeper drilling at Signal Hill. Thus, in 1928, the most important development in Louisiana was the finding of oil at Sorrento, east of the Mississippi River. The actual finding of this oil upsets older theories and opens up possibilities which may extend into Mississippi and possibly as far east as Florida. New discoveries within established districts and areas that were looked upon with little favor, have been made in 1928. Such discoveries promise more intensive searching in the future. The tendency toward deeper drilling in Reagan County, Texas, and in California in 1928, may eventually furnish quite as much new oil from beneath existing fields as the opening up of virgin territory elsewhere. The use of the torsion balance, the seismograph and magnetometer illustrates new methods for finding structures. The persistent drilling of salt domes in the Gulf Coast area, usually resulting in many disappointments, but also occasional discoveries, promise much oil for the future because of the many new structures these methods have found.

Production, Consumption and Stocks, 1920-1928

During the past eight years the following changes in production, consumption and stocks have occurred:

	Production (bbls.)	Production plus imports (bbls.)	Consumption including exports (bbls.)	Stocks (bbls.)
1920	442,929,000	551,723,000	522,309,000	221,460,000
1928	943,826,000	1,035,456,000	1,008,959,000	609,112,000
Increase	500,897,000	483,783,000	486,650,000	387,652,000
Percentage increase	113	88	93	175

Only in 1926 was there a decrease in stocks. This amounted to 24,764,000 bbls.

It should be evident to all concerned that during the past eight years scientific developments within the industry, in finding new fields, in producing oil and in utilizing oil at refineries have more than kept pace with growing consumption. The end of such commendable efforts is not yet in sight. They may be expected to continue in the same manner for many years to come. They therefore indicate that the greatest problem which the industry has to solve is the one of overproduction. The successful efforts in this regard in 1928, and those planned for 1929, are encouraging indications that much can be done and that much will be done in the way of intelligent regulation, curtailment and conservation.

FACTORS AND METHODS AS TO BACK-PRESSURE

(Continued from Page 32)

recovery of oil would be greater than if back-pressure control had not been practiced.

Conclusions

Certain outstanding facts regarding back-pressure control have been determined by making tests on many flowing wells, and the following major conclusions have been reached:

1. Back-pressure control may be applied by several different methods. The use of flow beans is the most important and widely used.
2. It is successful in reducing gas-oil ratios and therefore increases ultimate recovery from reservoir sands.
3. It is more effective if applied early in the producing life of wells.
4. It may or may not decrease current oil production, although the preponderance of data show that daily production is usually reduced slightly when back pressures are applied.

Two factors are recognized to be of vital importance and essential to the successful experimentation of back-pressure methods on flowing wells. Merely lowering a gas-oil ratio by changing the amount of back pressure on a well does not necessarily imply the change is beneficial. The trend of the gas-oil ratio curve subsequent to a change in back pressure is the most important item from which conclusions are drawn. Therefore, it is most important to record, preferably in graphic form, oil and gas production, gas-oil ratio, and pressure data. The second important factor of successful experimentation is the making of only one operating change at a time, allowing the well to produce for a sufficient period between changes—perhaps as long as two or three weeks—in order that conditions may adjust themselves and that the definite trends of the new gas-oil ratio curve may be determined. Without statistical data and information which reflect conditions at the well in true perspective, conclusive results cannot be determined and subsequent changes in well operation must be made blindly.

Use of Flow Beans

Generally the most successful method of applying back pressure on flowing wells is by means of flow beans inserted in the lead lines from wells. No more outstanding examples of gas conservation and consequent increase in recovery efficiency can be cited than that accomplished in the Ventura Avenue Field in California. The production of vast quantities of gas for which there was no market compelled operators in that field to bean flowing wells drastically in an endeavor to curtail waste of gas and increase the recovery efficiency of oil.

Although back-pressure control of flowing wells is most frequently applied by means of flow beans, other methods, such as altering the size and depth of tubing and holding pressure on the gas and oil separators, are at times effective. Controlling back pressures by altering the size and depth of tubing is more difficult to accomplish and usually less effective than the use of flow beans.

Although pressure control of flowing wells usually decreases daily oil production, the percentage decrease of daily production in almost every instance is less than the percentage decrease in gas-oil ratios, indicating that more often than not ultimate recovery will be greater if pressure control is applied. Since daily production is usually less when wells are produced under back-pressure control, and since production is consequently deferred, a considerable amount of opposition to the practice has arisen among certain operators and has led them to believe that back-pressure control is not economically sound. Available data indicate that deferred production when considered in terms of the life of a well is returned in a comparatively short time.

Back pressure may be adjusted and maintained on gas-lift wells as in flowing wells. In addition, it is possible to vary the amount of back pressure in gas-lift wells over wide limits by changing the volume of circulated gas. The effective back pressure on the face of the producing sand in pumping wells may also be controlled by a method similar to that used in flowing wells. Varying the speed and length of stroke of the pump are additional methods of affecting changes in back pressures on pumping wells.

HUMBLE CO. FIELD MEN IN ANNUAL MEETING

HOUSTON, Tex., Feb. 16.—In line with a policy of the Humble Oil & Refining Co. to hold meetings at intervals for all its superintendents and assistants, a meeting was held at the company offices at Houston following the annual meeting of the board of directors. Field problems were discussed.

District superintendents attending were Dave Frame, McCamey, Tex.; W. E. Hubbard, Amarillo; D. B. Harris, San Antonio; Fred Rice, Shreveport; Bert Rowday, Wichita Falls; A. O. Behling, Corsicana; W. W. Wallis, Cisco, and C. B. Goddard, Ardmore, Okla. Assistant superintendents present were Charles Morris, Wichita Falls, and A. M. Hepler, Ardmore.

Representing the Houston office were John R. Suman, director; H. L. Edwards, superintendent; H. K. Arnold, assistant to Mr. Suman. H. E. Bell, head of the personnel department, was a guest.

LARGE POTENTIAL OIL FIELDS HAVE BEEN DEFINED IN PERSIA AND IRAQ

By Sir John Cadman*
Chairman of Board, Anglo-Persian Oil Co., Ltd.

The production from the Maidan-i-Naftun area for the year ending March, 1928, was 40,210,200 bbls., an increase of nearly 13 per cent over the production for the year ending March, 1927. The production by years since the opening of the field in 1912 is given in the following table:

(1 ton=7.53 bbls.)

Year ended March	Tons	Year ended March	Tons
1912 (7 mo.)	43,084	1920	1,354,631
1913	80,800	1921	1,767,070
1914	273,635	1922	2,310,098
1915	375,977	1923	2,913,908
1916	449,394	1924	3,583,000
1917	644,074	1925	4,221,000
1918	897,402	1926	4,470,000
1919	1,081,919	1927	4,735,000
		1928	†5,340,000

†40,210,200 bbls.

The actual production represents only a small portion of the potential production.

Masjid-i-Suleiman Field

The present producing unit, the Masjid-i-Suleiman, is an anticline some 20 miles in length by 4 miles in width, including three domes as so far proved. The producing horizon is a very open, dolomitic limestone, which, while showing much variation in texture and porosity, is so connected that the lowering of pressure in one section of the field quickly affects the whole area.

The topography of the field is broken, with differences of well elevations of as much as 1,100 feet. The depths to the limestone vary from about 800 to 5,000 feet. The closed-in pressure of the oil wells varies from zero to 50 pounds per square inch and that of the gas wells is about 450 pounds. Although the static oil level may be several hundred feet below ground level, in oil wells of high elevation, all the wells flow continuously or intermittently after they are once started—the majority continuously. The gas is very high in hydrogen sulphide in gas-oil wells of low pressure. In high-pressure wells, the hydrogen sulphide is more largely absorbed by the oil. At rock pressure conditions the gas in dissolved in the oil, coming from it as the pressure is reduced. The oil and gas are separated in the field and the oil is transported to the refinery at Abadan Island at the head of the Persian Gulf, a distance of about 145 miles.

The hydrogen sulphide content of the gas makes it very poisonous, and its use in a commercial way constitutes a problem of some proportions. The total absence of helium, and the presence of only traces of argon are matters of interest.

The wells vary in potential production from about 1,000 to 20,000 bbls. per day with an average of about 8,000 bbls. The oil is a mobile liquid, brown in color, with a green fluorescence. Its mean specific gravity is 0.837. It flows from the wells accompanied by scarcely a trace of water.

It is an oleosol in which small amounts of asphaltic compounds and amorphic waxes are dispersed in a hydrocarbon-continuous phase. The asphalts are readily flocculated by a trace of sulphuric acid, while the soft waxes are slowly deposited when the oil is allowed to stand undisturbed.

Other Producing Areas

During 1928, in addition to the further testing and development of the Masjid-i-Suleiman Field, production was proved or developed in three additional areas.

About 55 miles south and southwest of the Masjid-i-Suleiman Field another promising flowing structure (Haft Kel) has been found and its testing is now going on to determine its extent. Arrangements are being made to produce from this field. The crude will gravitate to Kut Abdullah, one of the main pipe line booster stations, 50 miles distant, which is 67 miles from the refinery at Abadan.

Still further to the south, about 100 miles, flowing production has been proved. Further drilling will be necessary to prove the potentialities of this area, since the first well with 1,120 pounds closed pressure is not in good shape for completion.

To the north in the Naft Khana Field, almost on the borders of Iraq, a large production has been proved and shut in. This field can not be produced except to a small extent for local refining until a pipe line outlet is constructed to the Mediterranean.

In Iraq, testing operations continue. The following statement was made by the chairman of the Anglo-Persian Oil Co., Ltd., at the nineteenth ordinary general meeting of that company in November, 1928: "Recent drilling in Iraq has met with decided success but many of the wells are comparatively deep, gas pressures are high and rapid drilling is not easy. Much remains to be done before the path is cleared for final scheme of development, but the future is bright with promise."

Control of Production

The operating control of the Persian fields is vested entirely in the one company giving an opportunity for unit operation and its accompanying advantages in the control of production, and the development of the field from a strictly engineering standpoint. Not the least of these advantages is the possibility of estimating accurately the reserves of the field at a comparatively early stage in its development. In the address to which reference has been made the chairman said: "As an outcome of the continuous application of scientific methods to the examination of our main producing area (Masjid-i-Suleiman), I am able to state that its structural complexities have been so successfully studied that full reliance can now be placed upon calculations as to the magnitude of the oil reserves."

*Copyright, 1929, by the American Institute of Mining and Metallurgical Engineers, Inc. Abstract of paper delivered at New York meeting, February, 1929.

PONDERA TO REACH PEAK; NEW FIELDS IN MONTANA

In reviewing Montana's oil industry before the New York meeting of the A.I.M.E. Ralph Arnold said:

The coming year will see Pondera production reach its peak. Favorable weather has allowed winter drilling and 1929 will doubtless see 200 wells in production. A dozen wildcats now drilling in various parts of the Sweetgrass Arch are due for completion during 1929.

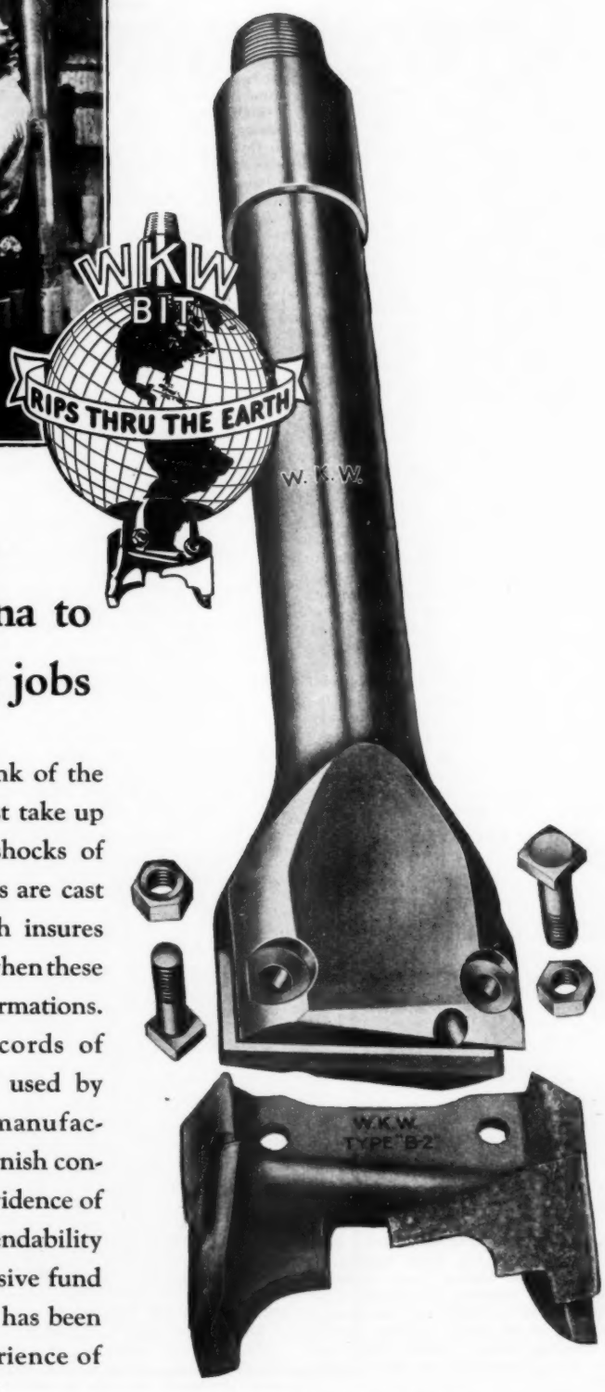
The coming year will see the exploitation of two new oil fields discovered during 1928. One is the Dry Creek structure, in southern Montana, where the Ohio Oil Co. has found evidences of a new light-oil field. The other is known as Flat Coulee structure, near the Canadian border and the Sweetgrass Hills, where Sunburst Oil & Refining Co. has discovered a pool of high-gravity "sweet" oil. Other important tests in the Sweetgrass Hills area, started during 1928, are expected to bring new production to swell Montana's 1929 total.

Operators who have allowed their Kevin-Sunburst production to shrink, in the absence of drilling to offset natural decline, plan a program of approximately 300 wells to bring Kevin-Sunburst production up to the demands of refineries dependent on this crude.

Montana refiners have had a very bad year, with high-priced crude that could not be profitably refined in competition with gasoline from low-priced crudes of the Mid-Continent. Kevin-Sunburst crude is bringing $1.75 per barrel (including 10-cent bonus) while crude of similar gravity in the Mid-Continent has been commanding 40 cents per barrel. There is a movement among refiners to eliminate the bonus, in order to make 1929 more profitable.

The re-entrance of several of the Standard group into Montana during 1928 will doubtless be reflected in drilling operations during 1929.

W. K. W. Drilling Bit used in well at Signal Hill Field, Long Beach, Calif. Drilling through formations interlaid with boulders, this bit reached 1166 feet without breakage.



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IN the Signal Hill Field, Long Beach, Calif.—boring constantly through alternating layers of hard rock and crumbling surface formation—a 17½-inch W. K. W. Drilling Bit recently drilled 1166 feet without requiring a change in the cutter. Before this bit was introduced, breakage occurred frequently, especially during the difficult work encountered in the first thousand feet of drilling.

In order to prevent breakage under such severe service it is essential that the materials used in making W. K. W. Drilling Bits possess unusual toughness and strength. For this reason Nickel Chromium Steel is used for the shank of the bit—the part which must take up the heavy stresses and shocks of hard drilling. The cutters are cast Nickel Alloy Steel which insures freedom from shattering when these parts strike flint-like formations.

The performance records of Nickel Alloy Steel parts used by leading manufacturers furnish conclusive evidence of the dependability of these alloys. An extensive fund of helpful technical data has been collected from the experience of typical users.

You are welcome to consult our engineers and to draw upon this information at any time.

Nickel
FOR ALLOY STEEL

W. K. W. Drilling Bit manufactured by WIEMAN-KAMMERER-WRIGHT CO., INC., *Hollydale, Calif. Shank of bit constructed of Nickel Chromium Steel; cutters of Nickel Alloy Steel.*

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DEVELOPMENT ORDERLY IN VENEZUELA FIELD

(Continued from Page 32)

because of mechanical trouble. No. 1-A was drilled during 1928, but also for mechanical reasons failed to make a producer.

The showing encountered in these wells, however, afforded practically conclusive proof that a commercial field could be opened up, and during 1929 further drilling will be done to determine the importance of this area. The locality is comparatively close to the shore of the Caribbean Sea, and any oil produced can be readily brought to tidewater without great expense for pipe line construction. Here again, though, the chances are that production from this section will not appear until next year.

Wildcat Drilling

Some five wildcats completed during the year may be classed, at least provisionally, as moderately successful operations. Gulf-Amana's No. 1 and Orinoco Oil Co.'s Netick No. 1, in the District of Mara, have already been mentioned.

Besides these wells, 19 failures were recorded during the year. Several deep tests south of the Lagunillas and Mene Grande Fields were carried down to depths of 5,000 feet or more without finding commercial production; and as a result it would appear that the oil prospects over a large area in the southeastern part of the basin will be confined to very deep sands. The other wildcat failures were scattered over a wide area including two in the District of Mara, one in Miranda, three in Trujillo (southern end of the lake), one in eastern Venezuela, and seven in the State of Falcon.

With respect to developments in the producing fields, the situation changed but little during 1928. All of the production, with the exception of a few barrels from the new Hombre Pintado Field, came from the old fields; and the increase was accompanied by only a very slight increase in drilling activity.

The principal result of the year's accomplishment are summarized in Figure 1, and the following review of the developments in the fields.

FIGURE 1—VENEZUELAN OIL STATISTICS TO DECEMBER 31, 1928

Field—	Drilling summary: Wells drilled prior to 1928 Producers	Wells drilled prior to 1928 Dry holes	Wells drilled year 1928 Producers	Wells drilled year 1928 Dry holes	Av. depth of hole drilled in 1928	Wells drilling Dec. 31, 1928	Gravity of oil degrees Baume
Mene Grande	137	*3	12	*2	2,888	2	18
La Rosa	318	10	117	1	2,456	15	25
El Mene, B. C. O., Ltd.	131	54	25	21	1,100	7	36
La Paz	26	3	0	0	....	0	25
Concepcion	64	1	0	0	....	0	36
Ambrosio	42	3	4	1	2,709	0	24
Punta Benitez	29	9	2	0	2,628	0	26
Lagunillas	71	0	190	1	3,490	30	17.5
La Tarra	15	8	5	2	2,263	4	30
Rio De Oro	4	0	0	0	....	0	27
Guanoco	6	0	0	2	....	2	10
Hombre Pintado	0	0	4	0	2,003	2	..
Totumo	1	0	1	0	2,500	4	..
El Mene, Tucuyo O. F. Ltd.	2	3	1	3	1,898	2	..
Wildcat operations	9	100	5	19	....	13	..
Total	855	187	373	54	....	81	..

*Includes holes abandoned because of mechanical difficulties and others that had showings of oil of varying degrees of importance.

Lagunillas Field

Throughout the year, the center of production activity was in the Lagunillas area, the southernmost of the lake shore fields. Some 190 producing wells were completed during the year without a single dry hole having been recorded. Production is obtained at depths ranging from 3,200 to 4,200 feet, the deepest wells being to the south. Initial productions average around 3,000 bbls., with shut-in casing pressures of 200 to 1,000 pounds.

The field is now about 7 miles long and 2½ miles wide, though these figures both for length and width will in all probability be considerably increased. Drilling has extended out into the lake for over a mile from shore, some of these outlying wells being in water 25 feet deep. The economical construction of these deep-water derrick foundations presents an interesting engineering problem that is receiving much attention.

During 1928 Lagunillas produced at the average rate of 169,000 bbls. per day from 261 wells. It has been further established that the oil zone is very prolific, and several wells have passed the 1,000,000-bbl. individual output mark; with two or three having better than 2,000,000 bbls. to their credit.

Practically all the Lagunillas wells are flowing, and it is as yet impossible to foretell the probable rate of decline for any large part of the field. In the light of the results to date, it appears that a very substantial percentage of the proved acreage will yield better than 65,000 bbls. to the acre.

La Rosa Field

La Rosa Field, including Ambrosio and Punta Benitez, now covers an area of some 13,000 acres, which can be considered proved territory. It is separated from Lagunillas to the south by a 12-mile stretch, from which no production is at present being obtained. However, even in this gap, there are two potential localities: Tia Juana, and San Matias, where a small amount of drilling has demonstrated the probable existence and continuity of commercitl production, between the two fields.

The notable occurrence of the year at La Rosa was the extension of proved territory into the lake for some 2 miles from shore, and the final closing of the gap between the Ambrosio area to the north, and La Rosa proper.

The Ambrosio section, in which some 50 wells have been drilled, was shut in for the greater part of the year, but commenced shipping in quantity in November. Production from the older parts of La Rosa Field is now largely obtained by pumping, or gas lift. In these sections substantial well-output declines have taken place, and some idea of the ultimate yield per acre can be ascertained. It appears that on the average La Rosa Field will yield considerably less, acre for acre, than Lagunillas. The question is somewhat obscured because of the passing up of some of the producing levels in some wells, and failure to deepen certain other wells to known productive horizons. However, a fair estimate would seem to be an ultimate yield of 40,000 to 60,000 bbls. to the acre for a large part of the field.

Mene Grande Field

Only 14 completions were recorded at Mene Grande during 1928, and for several months new drilling was completely at a standstill.

This is a "one company field," and enjoys complete freedom from the problems arising in areas where competitive drilling prevails. In spite of the cessation of drilling, production was well maintained, and the year's record presents the spectacle of a field in which only 14 wells were drilled, producing about 14,000,000 bbls. of oil.

During the year, the productive potentialities of the deeper horizons were further revealed. Only a few wells have been deepened into the so-called "Pauji zone" but the results so far obtained indicate exceptional possibilities. One of the wells deepened to the lower sands in February produced over 700,000 bbls. to the end of the year, and appears to be capable of passing the 1,000,000-bbl. mark by a wide margin. This well was originally completed in the upper sands in 1924; it is situated in the older part of the field. It is evident that potentialities of this lower zone necessitate an upward revision of the estimated per acre yield for this field. An old figure of 25,000 bbls. to the acre ultimate yield was commonly assigned to Mene Grande but this estimate now appears to be considerably too low.

The area of proved territory covered by the Mene Grande Field, which is now in its twelfth year of productive life, is approximately 4,000 acres; 154 wells have been completed to the end of 1928, and the limits of proved territory are still only partly defined.

El Mene Field

This field, like Mene Grande, is a unit operation, under sole control of one company. It is the oldest and largest of the two "sweet oil" fields, in Venezuela, the other being La Concepcion. Production comes from a shallow average depth of 1,100 feet. The limits of the pool were not extended during the year, and the full extent of productive territory, which is now pretty well in sight, covers an area of about 900 acres. Despite the lack of new flush territory to draw from, production during 1928 was well maintained, due in large part to the installation of a modern gas-lift system throughout the field.

Guanoco Lake Field

Far from the Maracaibo Basin, in the extreme northeastern tip of Venezuela, the New York & Bermudez Co. (General Asphalt subsidiary), continued small-scale drilling and production activities.

At the close of the year, production was running about 1,000 bbls. per day, and two strings of tools were in operation.

The oil from this field is of about 10 degrees Baume gravity, and is used in connection with the asphalt business of the company.

Other Fields

La Paz and La Concepcion, the two fields on the west side of the lake, were shut down during the year. Active drilling was carried on in the Tarra Field throughout the year, but as previously noted, production from this locality must await the construction of the projected pipe line.

Production Outlook

Custom and precedent, as well as a widespread general interest in the subject, impose an obligation on whosoever essays the role of oil reviewer to attempt also the role of prognosticator. For several years now this service, with respect to Venezuela, if it may be so described, has been annually performed and duly presented at the February meeting of the Institute. Heretofore a gratifyingly high degree of accuracy has attended the several efforts in this direction undertaken by the authors. However, in this year's attempt to uphold tradition, an unusually large number of uncertainties must be taken into account, and accordingly our 1929 estimate of Venezuelan production is offered with some misgivings and a plea that its necessarily tentative character be clearly recognized.

Summing up all the factors that may influence the 1929 production record, it is quite apparent that the contribution from flush new fields will be small. It is not only possible, but probable, that the new fields, and new wildcat operations will result in substantial additions to reserve, but not much oil from these expected new sources is likely to come on the market in 1929. The one occurrence that might disturb this prediction would be the discovery of prolific production in one of the wildcats now drilling along the west shore of the lake. Even in this case, the actual exports of oil will not be immediately affected, as before oil can be moved out of the Lake of Maracaibo, especially constructed shallow-draft tankers must be available, and the existing combined tanker fleet of all companies is employed at capacity with oil already in sight from the old fields, and will continue to be so employed throughout the year.

Tanker Capacity Controls Exports

The point to note with respect to Venezuela's annual exports is that the figure is controlled entirely by the capacity of the shallow-draft tanker fleets, which transport the oil from inside Lake Maracaibo to the ocean terminals situated on deep water.

New discoveries in the field, and new fields coming into production, are of secondary importance, in a broad consideration of Venezuelan oil, from the standpoint of its effect on the United States price structure. The most important controlling factor is shallow-draft tanker capacity.

At the close of 1928, there were in service 70 vessels, especially designed for the transport of oil over the bars at the entrance to the Lake of Maracaibo. This fleet was divided between Royal Dutch, Lago Petroleum Corp., Gulf Co., Mexican Eagle, and Creole Petroleum Corp. During the month of December, it moved approximately 10,000,000 bbls. (330,000 bbls. per day), which represents practically the maximum capacity of the fleet as of the end of the year. During the present year certain additions will be made to this fleet, and it will be these additions and not the field developments that will determine the amount of oil that Venezuela will place on the markets of the world in 1929.

At the present writing, the plans for new tanker construction during 1929 are not known. What appears to be a reasonable expectation in this direction is an average increase for the year of about 15 per cent in the total fleet capacity; and this in turn points to total exports for 1929 of around 138,000,000 bbls. Production will be larger by at least 10 per cent, and probably in view of the large volume of new steel storage projected and under construction, the increase may be nearer 15 per cent. Assuming the latter to be the case, production for the year may be estimated at 160,000,000 bbls., of which the significant figure from the viewpoint of American oil interests is the 138,000,000 bbls. that will be exported.

Only Exports Affect Prices Here

In most discussions and writings relative to the Venezuelan situation, the figures customarily presented are for field production, and in many cases insufficient emphasis is given to the fact that only the oil exported has a direct bearing on the price structure in the United States. Even an export figure such as the foregoing estimate of 138,000,000 bbls. conveys little to a person only casually conversant with world-production statistics.

The great bulk of Venezuelan exports gravitates to the United States. There is, however, a substantial difference between the amount of crude produced and the amount actually imported into our country; as, for example, for the year 1928, when the production for Venezuela amounted to 106,500,000 bbls., of which it is estimated that only 75,000,000 bbls. were consumed in the United States.

A further analysis of import figures will reveal the fact that so far as the price of gasoline is concerned, the Venezuelan developments can have had little effect. The total gasoline from Venezuelan crude that came on the American market during 1928 probably amounted to less than 9,500,000 bbls.; say only 2.6 per cent of our total refinery output.

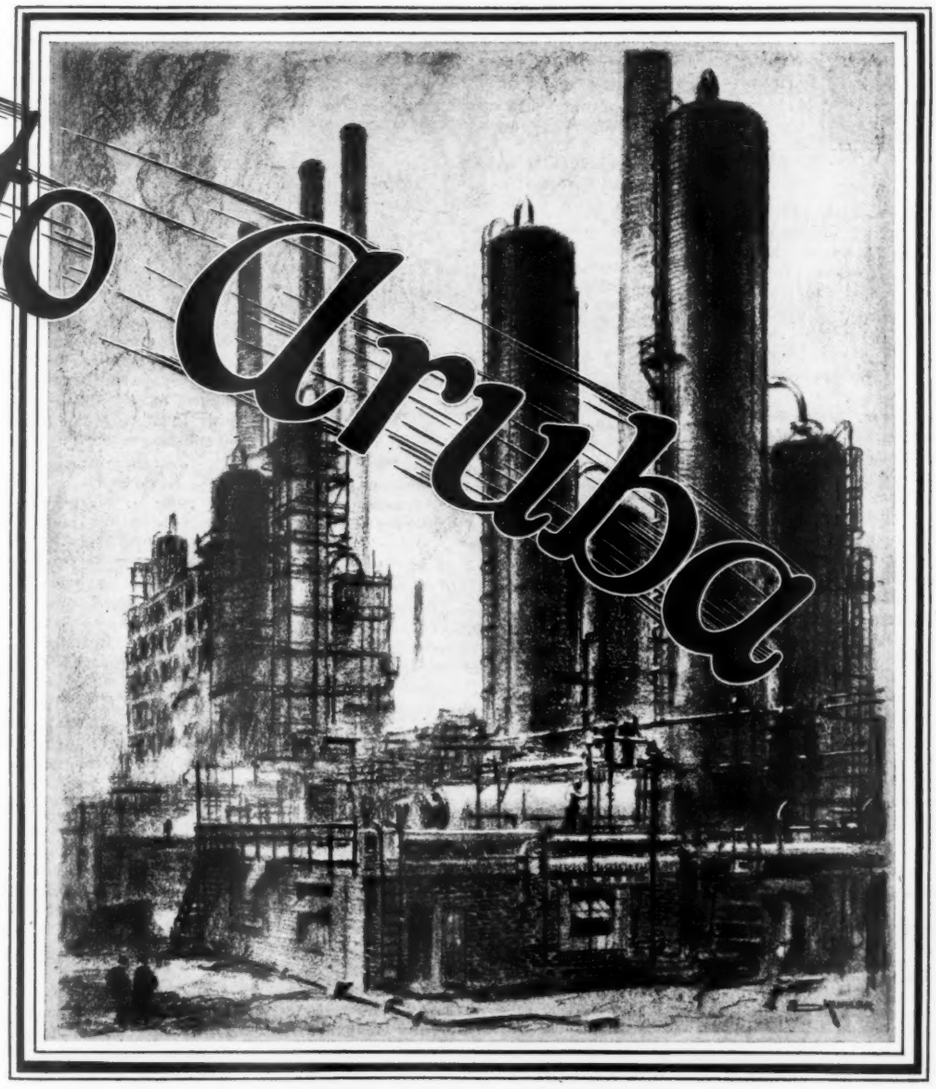
With fuel oil the situation was quite different, as of this commodity Venezuelan importations accounted for approximately 60,000,000 bbls., or 14.3 per cent of the estimated American total. Without doubt the substantial increase in fuel oil available from Venezuelan crude largely contributed to the drop in price from $1.75 at the beginning of 1927 to $1.05 per barrel for Bunker C grade (New York Harbor) at the close of 1928. The increasing importance of the relationship between Venezuelan production and the fuel-oil situation in the United States is clearly shown. The effect on prices during the present year cannot be accurately forecast at this early date. Important refinery construction is now in progress in the Caribbean area, and certain far-reaching changes in the export situation will result therefrom. In general, it may be stated that a larger percentage of Venezuelan exports will reach the American market as gasoline, and the volume of fuel oil may be but slightly increased.

OIL IN JUGOSLAVIA

According to reports from Belgrade, M. Peter Teslics, a well-known manufacturer, has discovered oil in the Sisek industrial district at a depth of about 2,000 feet. The productivity of these wells is estimated as larger than the Baku wells.

Have not these people answered the hot oil pump question?

It is not so much the size of this order that we want to emphasize, as it is the confidence reposed in TRANSIT Hot Oil PUMPS and TRANSIT Refinery Pumps by one of the leading refinery builders in this country—The M. W. Kellogg Company.



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St. Louis, Mo.

MEN KNOWN IN OILDOM

Lacey Walker

Lacey Walker, who became secretary as well as assistant treasurer of the American Petroleum Institute as a result of the reorganization of that body's plan of operation at the December, 1928, meeting in Chicago, had already gained the reputation of being one of the Institute's really hard workers. While serving as assistant treasurer, Mr. Walker had shouldered many of the details of arrangement which went far to assure the success of the Institute's meetings.

Mr. Walker was born in Oskaloosa, Iowa, February 16, 1892, and was educated in the public schools of that town and Des Moines, Iowa. Later he took up the study of accountancy and business law and received a diploma from the Walton School of Commerce. Mr. Walker then entered the employ of the Rock Island Railroad. From 1912 to 1918 he was chief statistician for the Iowa Railroad Commission, serving under Clifford Thorne, then chairman of the commission. When Mr. Thorne left the Iowa commission and became commerce counsel for the Western Petroleum Refiners Association, Mr. Walker went with him as statistician.

Mr. Walker joined the staff of the American Petroleum Institute as statistician on January 17, 1921. Subsequently he became head of the Institute's Division of Statistics. He had served as assistant treasurer for five years at the time he was elected secretary and re-elected assistant treasurer last December. Mr. Walker married Miss Mary E. Ristrin, of Des Moines, April 26, 1913. They have two children.

PERSONAL PARAGRAPHS

Raymond J. Denyven is now manager of the Tulsa office of Francis Brothers & Company.

* * *

G. C. Tisdale, Cisco, Tex., independent operator, was a recent visitor in Fort Worth, Tex.

* * *

Clive M. Alexander, general manager of the Imperial Refineries, Tulsa, is visiting its El Dorado, Ark., plant.

* * *

J. E. Redburn, Midwest Exploration Company, Abilene, Tex., was a recent business visitor in Fort Worth, Tex.

* * *

B. E. Hull, president of the Texas Pipe Line Company, Houston, Tex., broke his usual practice of making his trips by air by going to Tulsa the past week by railroad. Uncertain weather conditions prevented his use of the airplane.

T. M. Martin, vice president of the Lion Oil Refining Company, at El Dorado, Ark., was in Chicago last week.

* * *

N. C. McGowen, vice president of the Palmer Corporation, Shreveport, La., is spending a short vacation in Panama.

* * *

R. V. Hanrahan, president of the Humble Pipe Line Company, Houston, Tex., has been in Dallas, Tex., on a short business trip.

* * *

T. M. Barton, president of the Lion Oil Refining Company, El Dorado, Ark., attended the Mardi Gras festivities in New Orleans.

* * *

Edgar Kraus, San Angelo, Tex., district geologist for the Atlantic Oil Producing Company, spent a few days in Dallas last week.

* * *

Earl B. Noble has been appointed assistant chief geologist of the Union Oil Company of California under D. B. Myers, chief geologist.

* * *

A. W. Peake, president, and A. M. McCorkle, vice president, of the Dixie Oil Company at Shreveport, La., spent the week in Chicago.

* * *

F. J. Miller, chief division geologist for The Texas Company at Shreveport, La., spent the week in the new Kansas producing territory.

* * *

J. E. Buckley, chief scout of the Twin State Oil Company, has returned to his desk after being confined to his home for a month on account of illness.

* * *

Wesley Gish, in charge of the Sinclair Oil & Gas Company's Texas and New Mexico land department, has returned from a business trip to Tulsa.

* * *

Jack Shaw, formerly manager of the Globe Petroleum Company, a Penrose and Riley interest at Tampico, Mexico, spent several days in Houston, Tex., on business.

* * *

Ford Turner, in charge of the Pure Oil Company's West Texas land and scouting offices at San Angelo, Tex., has returned following a business trip to Fort Worth.

* * *

T. H. A. Tiedeman, head of the personnel department of the Standard Oil Company of New Jersey, was in Houston, Tex., visiting at the Humble Oil & Refining Company.

* * *

F. W. Burford, president of the Burford Oil Company, of Pecos, Tex., was away from his Shreveport offices during the week, attending to business at the Pecos plant.

* * *

Gilbert Wood, manager of the Independent Oil & Gas Company's West Texas and New Mexico operations, has returned to his Fort Worth headquarters following a trip to West Texas.

* * *

W. E. (Steve) Dunlap, John McKeon's assistant, has been appointed production manager of the Richfield Oil Company following the latter's retirement as vice president in charge of production.

* * *

A. Milek, chief geologist of the Mexican Sinclair Petroleum Corporation, Tampico, Mexico, has returned to his post after a hurried business trip to the Houston, Tex., offices of the company.

* * *

The many friends of Carl H. Beal, until recently vice president of the Marland Oil Company of California, will be pleased to learn of his marriage to Mrs. Cynthia Anderson of Burlingame, Calif.

* * *

R. M. Dinges, foreign representative of the Continental Supply Company, and J. A. Mussler of the Youngstown Sheet & Tube Company, have sailed for South America in the interests of their respective concerns.

* * *

D. R. Thompson, formerly geologist for McKeon Drilling Company and for the past year assistant production manager of the Pan American Petroleum Company, has been appointed assistant production manager of the Richfield Oil Company.

J. B. Headley, formerly of Bartlesville and Tu... has been elected secretary of the Geological Soci... of New Mexico. The association meets monthly ... Fridays, and has headquarters at Roswell. M... Headley is chief geologist for the Trico interes...

* * *

C. M. Denham, field engineer of the Shell ... Company for several years at Long Beach, has r... signed that position in order to become chief e... gineer of the recently organized Pacific West... Oil Company, of which W. C. McDuffie is presid...

* * *

E. L. Miller has been elected vice president ... charge of sales of the Shell Oil Company with o... fices in San Francisco. Mr. Miller succeeds Herb... R. Gallagher, who recently resigned in order t... become president of the Shell Development Co... pany.

* * *

F. W. Kirk, general superintendent of the Hou... ton Pipe Line Company, Houston, Tex., was ma... ried February 6, the bride being Miss Ruth Bel... Selle, daughter of Mr. and Mrs. R. A. Selle of Hou... ton. The couple are on a honeymoon tour throug... Mexico.

* * *

J. J. Frommer, formerly in charge of productio... in the Yates Pool in Pecos County, West Texa... for the Mid-Kansas Oil & Gas Company, has bee... transferred to Oklahoma City and will have charg... of the company's drilling and production in th... Oklahoma City area.

* * *

Palmer Hughes is in charge of the branch offic... which the M. W. Kellogg Company has recentl... opened in the Philtower Building, Tulsa. A. B... Chandler is in charge of the branch office locate... on the Pacific Coast at Western Pacific Building... Los Angeles, Calif.

* * *

E. T. Kelly, district manager for the Banner... Rock Products Company, of Alexandria, Ind., cov... ering Louisiana, Texas and southern Arkansas... territory, with headquarters at Houston, has re... signed to accept the same position with the Gen... eral Insulating & Manufacturing Company, of Al... exandria.

* * *

B. Kurpeshock, of Schevenengen, Holland, and... his son, M. Kurpeshock, are now on a tour of... the principal oil centers of the United States. They... spent several days in Tulsa last week. Mr. Kurpe... shock is a large buyer of refinery products from... operators in this country. They will return to Hol... land early in March.

* * *

Henry E. Brandli, vice president and general... manager of the Cities Service Export Oil Company,... is making a visit to the southwestern offices of... the company. His visit includes the Tulsa, Wichita... Falls, Tex., and New Orleans offices of the com... pany. He will return to the New York offices the... latter part of the month.

* * *

W. W. Kilpatrick, graduate of the Massachusetts... Institute of Technology, and J. D. Monk, graduate... of the engineering department of the Texas State... University, have taken positions with the Petty... Geophysical Engineering Company of San Antonio.... They will be connected with the seismological sur... vey the company is now making in the Gulf Coast... area.

* * *

E. S. Pratt, who has been geologist for the... Shell Petroleum Corporation at Ponca City, Okla.,... will have charge of the geological department at... Wichita, Kans. Clark Millison, subsurface geolo... gist; J. B. Hoover, assistant subsurface geologist;... L. R. Fortier, subsurface geologist; and H. M. Stan... ley, core drill superintendent, will move with him.... J. D. McClure, of Wichita, will continue as a field... geologist.

* * *

T. L. Allen, of the engineering department of... the Yount Lee Oil Company, of Beaumont, Tex.,... has resigned and has accepted a position with the... Petty Geophysical Engineering Company of San... Antonio, Tex., and S. E. Damon, vice president and... attorney of the Gracy Title Company of Austin,... Tex., has resigned and has joined the legal de... partment of the Petty Petroleum Company. Mr.... Allen was formerly professor of geology of the... Texas State University.

Natural Gas Developments

Columbia G. & E. Co. Buys Into New Gas Field in New York

OLEAN, N. Y., Feb. 16.—Sale of a large block of stock in the Belmont Quadrangle Drilling Corp., owners of the deep gas well on the Gilbert farm near Richburg, to the Columbia Gas & Electric Corp. of Pittsburgh has been reported.

Nine hundred shares of the Belmont Quadrangle stock have been sold to the Pittsburgh concern at a price of several hundred thousand dollars, it was stated. The property involved consists of the deep gasser and about 15,000 acres of leases in Bolivar, Wirt, Genesee, Clarksville Townships, as well as some territory in Wyoming County.

Output of the well, which is believed to be between 1,500,000 and 2,000,000 feet per day, goes into the lines of the Columbia and the Empire Gas & Fuel Co. The Columbia company pipes the gas to Olean, where it is marketed by the Keystone Gas Co.

The Columbia also recently acquired the pipe lines of the New York Transit Co., extending from this locality to the Atlantic Seaboard.

Entrance of the Pittsburgh gas company into the Allegany Field will mean much to the Belmont corporation, it is stated, in as much as it will provide a market for present and future gas output of the Quadrangle.

Four deep wells are drilling at present in the gas field. Two of them should reach the gas sands within the next few days.

MORE COLORADO TOWNS TO GET NATURAL GAS

DENVER, Colo., Feb. 16.—The Public Service Co. of Colorado, subsidiary of Cities Service Co. and distributor in Denver and Pueblo of natural gas from the Amarillo Field in Texas, is negotiating with towns in northern Colorado with a view to extending the service to that district. The project will cost approximately $2,000,000 and will connect with the Colorado Interstate Gas Co.'s system at Littleton.

The Public Service Co. already supplies natural gas to Fort Collins from the Wellington Field and owns the local distributing plants in several of the intervening towns. Boulder, Longmont, Loveland, Berthoud, Lafayette, Louisville and Broomfield are among the towns mentioned, but the proposition so far has not been made to all of them. It will require 75 to 85 miles of main line construction to supply this territory. The Colorado Interstate Gas Co. also has plans under way for extending its system eastward from Pueblo through the Arkansas Valley.

GALLITZIN GAS CO. CHANGES

CASPER, Wyo., Feb. 16.—Changes are noted in the officials of the Gallitzin Gas Co., which firm supplies natural gas to Billings, Mont. This company is a subsidiary of the Ohio Oil Co. and C. R. Hetzler has been in charge of distribution in Billings since 1922. He now leaves Montana to become resident manager of the Mountain Fuel Supply Co. of Salt Lake City, an affiliated company with the Ohio Oil Co. Mr. Hetzler's place at Billings will be taken by J. E. Moore, his assistant, but W. M. Holland, general superintendent of the Ohio Oil Co. will assume the official title. Mr. Holland will not leave the Casper headquarters of the Ohio Oil Co. and will continue his duties as general superintendent under Mr. McFadyen.

SECRETARY W. C. GRANT JOINS LONE STAR CO.

William C. Grant of Dallas, Tex., director of the Texas Public Service Information Bureau, has resigned to accept a position with the Lone Star Gas Co. He will be engaged in public relations work for the Lone Star and subsidiary companies, and will have headquarters in Dallas.

William C. Grant

Mr. Grant has been director of the Texas bureau since June 1, 1927, having succeeded the late George McQuaid of Dallas. He is also secretary of the Southwest Division, Natural Gas Department, American Gas Association.

The Lone Star Gas Co. is the oldest field company in the Southwest, having started operations in 1909. It supplies gas to more than 200 cities and towns in Texas and Oklahoma, among its larger cities being Fort Worth, Dallas and Wichita Falls. The company operates about 3,000 miles of main pipe line and draws gas from 20 fields.

ORDERS GAS REDUCTION

The California Railroad Commission has ordered a reduction of 4 cents per 1,000 feet of artificial gas sold by Pacific Gas & Electric, based on current fuel oil prices. A 3-cent cut in Western States Gas & Electric and 6 cents in Coast Valleys Gas & Electric territories was ordered. Estimated effect on Pacific Gas is reduction of $800,000 in annual gross.

GAS LINES COMMON CARRIERS?

WASHINGTON, D. C., Feb. 16.—A bill has been introduced in the Senate by Senator James A. Reed of Missouri to extend the jurisdiction and control of the Interstate Commerce Commission over interstate carrier agencies to include those engaged in the transportation of natural gas. The bill was referred to the Senate Committee on the Judiciary.

DUAL COMMISSIONERS

SHREVEPORT, La., Feb. 18.—Gov. Huey P. Long has appointed R. S. Maestri, New Orleans real estate man, as commissioner of conservation succeeding Dr. V. K. Irion, holdover from the last administration. Doctor Irion has refused to vacate the office, claiming his term has not expired.

SOUTHERN CITIES SHOPS

SHREVEPORT, La., Feb. 18.—Southern Cities Distributing Co., retailing agency of the Arkansas Natural Gas Corp. in this area, is spending approximately $50,000 in warehouse and shops buildings here to serve as headquarters for those departments in Northwest Louisiana, East Texas and Southwest Arkansas. One of the three buildings will house all the automotive equipment and repair shops; the second will be a warehouse for pipe and other material, and the third will accommodate the meter testing and maintenance department, all three serving the entire division. They will cover a space of approximately three acres convenient to rail and highway transportation.

HELIUM APPROPRIATION REDUCED BY CONGRESS

WICHITA, Kans., Feb. 16.—A blow apparently was struck at a growing Kansas industry when the appropriations committee of Congress cut in half the appropriation for purchasing helium gas for use of the army and navy. Helium gas, for inflation of lighter-than-air craft, now is produced commercially only at Dexter, Kans.

The Dexter plant was built two years ago at a cost of $250,000. Lieut. R. R. Bottoms, retired naval officer and originator of the process by which helium is extracted, is in Wichita from the navy station at Lakehurst, N. J., to confer with Joe Carey, attorney for the Kentucky Hydrogen & Oxygen Co., which operates the Dexter plant.

"We are producing the only helium now processed in the United States," he said. "The $8,000,000 plant at Fort Worth has been junked, and a new $2,000,000 government plant at Amarillo is not yet in operation. Lobbyists have told the appropriations committee the Bureau of Mines will produce helium at a cost to the Government of $20 a thousand feet. I don't believe this can be done."

The Dexter plant, producing about 12,000,000 million feet a year, is under contract to the Government for all its product until July 1, 1935, at $35 a thousand feet. Before its entrance into the field the Government plant at Fort Worth produced the gas at $45 a thousand.

GAS DRILLING PLANS NEAR ELLICOTTVILLE, N. Y.

ELLICOTTVILLE, N. Y., Feb. 16.—The Pennsylvania Fuel & Supply Co., a subsidiary of the Columbia Gas & Electric Corp., is leasing between 15,000 and 20,000 more acres of farm land in this section for drilling for oil and gas. The land is in the towns of Ellicottville, Franklinville, Humphrey and Ashford.

The Columbia Gas & Electric Corp. has a pipe line at the present time, just north of this village, which runs from Olean to East Aurora, and it is the hope of the company that gas may be struck in this region and use this pipe line for an outlet. At the present time this is a 4-inch line, but the company is already making preparations to lay a new 8-inch line along the present right of way.

J. L. Milks of Beaver, Pa., with headquarters in Pittsburgh, is here representing the Pennsylvania Fuel & Supply Co. and is engaged in leasing the farm lands. Milks says his company plans to put down two or three tests in the early spring and will drill to the Medina sand.

This makes the fourth oil and gas company to secure leases in this section during the past few months. Others are the Iroquois Gas Co., Red House Oil & Gas Co. and an Ohio Oil & Gas Co.

DISTRIBUTION TOPICS AT A.G.A. MEETING

NEW YORK, Feb. 16.—The annual distribution conference of the Technical Section of the American Gas Association will be held in Boston, Mass., at the Copley Plaza Hotel, Wednesday, Thursday and Friday, April 3, 4 and 5. Details are in the hands of F. M. Goodwin, of the Consolidated Gas Co. of Boston, chairman, and H. W. Hartman, assistant manager of the American Gas Association.

The following committees will report at the conference: Distribution Portable Committee, Committee on Pipe Coatings and Corrosion, Subcommittee on Pipe Joints, Subcommittee on Meters.

The subcommittee on distribution design for house heating loads having particular reference to conversion of low pressure system to intermediate pressure system will also report.

M. I. Mix, Peoples Gas Light & Coke Co., will present a paper on "Unaccounted-for Gas."

L. A. Kirch, of the Midland Utilities Co., is chairman of the Committee on High Pressure Transmission of Gas, working on the following program:

Economies to be obtained by using various types of prime movers and pumping machinery.

Benefits to be derived from exhaust steam in connection with water gas plants.

Main costs on transmission lines.

A special subcommittee has also been appointed to make a report on methods of testing meters.

An open forum will include discussion of: Dust troubles and corrective measures, involving dust traps, oiling; fitting shop practice; metering gas in and out of high pressure transmission systems; copper tubing for gas services; servicing of house heating installation; high pressure metering for industrial gas; operation and maintenance of various types of high pressure holders; effect of dehydration on meter and governor diaphragms, etc.

MUNROE AWARD COMMITTEE

NEW YORK, Feb. 16.—The Executive Board of the American Gas Association has appointed the following as members of the Charles A. Munroe Award Committee: Arthur Hewitt, Toronto, Ontario, Canada; Clifford E. Paige, Brooklyn, N. Y., and F. C. Freeman, Providence, R. I.

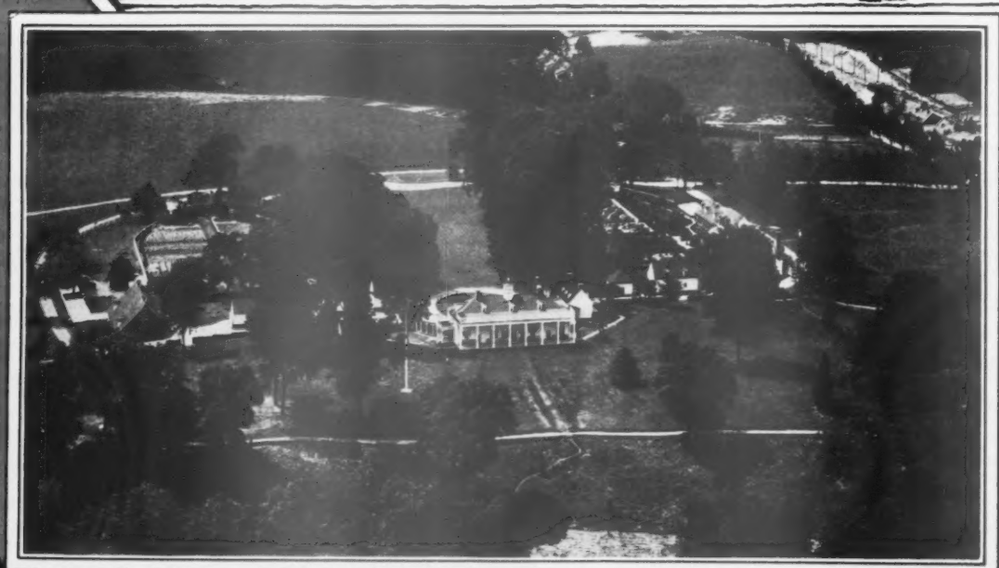
The Charles A. Munroe Award provides for the financial recognition of any individual who has made the most outstanding contribution during the year in the general interests of the gas industry. Mr. Munroe, the donor, is a former president of the American Gas Association.

It is presumed that contributions to the industry's advancement will include research, invention, operating methods or practices, increased sale of gas, development of new uses for gas, improved employe and public relations, promotion of safety, development of improved accounting practices, new methods of manufacture, finance, publicity, new gas works products and by-products, etc.

GAS EXPORT BILL

OKLAHOMA CITY, Okla., Feb. 16.—The bill permitting natural gas to be piped out of the State was adopted by a vote of 75 to 16 and amounts to an overriding of Governor Johnston's wishes. The governor vetoed a similar bill two years ago. The law which prohibits the piping out of gas has been in effect ever since the first legislature and was sponsored at that time by Governor Johnston as a member of that body.

"Observe Good Faith and J



An aerial view of George Washington's home at Mount Vernon, Virginia. The library and bedroom are kept as they were when used by him.

Justice + + + + Toward All"

FEBRUARY 22nd

is a date burned deeply into the historical soul of these United States as the birth anniversary of "The Father of our Country." Each year it has become our custom to recall in this space some characteristic of George Washington. The home of Cooper engines, being named in honor of his homestead, makes us especially inclined to revere his memory, and honor his ideals.

This year we are looking at Mount Vernon, Virginia, from high in the air—as Washington never could have viewed it. Points of view, engine and compressor designs, materials—science is changing all these and even the very structure of civilization, yet the precepts of our first president still stand as representative of our finest ideals. These same ideals have guided the three generations of men who for ninety-six years have been responsible for Cooper policies and the quality of Cooper machinery.

THE C. & G. COOPER COMPANY
MOUNT VERNON, OHIO
649 S. Olive St., Los Angeles
615 Kennedy Bldg., Tulsa
1116 Magnolia Bldg., Dallas

A view of the Cooper plant at Mount Vernon, Ohio, exactly as it appears today. The business was started by Charles Cooper on the same site ninety-six years ago.

EQUIPMENT AND SUPPLIES

ASSEMBLY PLANT TO BE PUT UP BY THE O.C.S.

The O. C. S. Manufacturing Co., of Coffeyville, Kans., has bought 10 acres of ground in North Long Beach, Calif., near the town of Hynes, and let a contract for the construction of a building to be used as an assembly plant. The property is well located for truck service either from the seaboard or to the fields in the Los Angeles Basin as well as being available to trackage for incoming or outgoing shipments.

Hillman-Cooney, Inc., Los Angeles, Calif., has handled the sales of the O. C. S. products in California during the past four years and it will handle the output of the California plant.

The O. C. S. Manufacturing Co. makes transmission equipment for standardizing derricks. Its machinery for cable tool drilling and deep well pumping is highly specialized, particularly for heavy duty work.

CABIN OF "GOLD SHELL" EQUIPPED FOR COMFORT

The "Gold Shell," $70,000 Fokker super-tri-motor monoplane, recently christened flagship of the Shell Aviation Corp., at Lambert-St. Louis Field, is equipped with three Wasp motors of 10 horsepower each. It has a wing spread of 71 feet, 6 inches and a height of 12 feet, 8 inches. Its top speed is 150 miles an hour at sea level, and its cruising speed 125 miles an hour. Particular attention has been given the construction and equipment of the ship's cabin which is 16 feet long and 5 feet high, affording an unusual degree of comfort and freedom to passengers. The cabin has six deep and roomy upholstered arm chairs, a comfortable lounge, a table, running water, a lavatory and refrigerator. A large baggage compartment is provided at the rear.

McKEE OPENS LONDON OFFICE

Arthur G. McKee & Co. of Cleveland, Ohio, engineers and contractors serving the refining industry, have established a London office from which all of the work originating in Europe can be handled. This company is erecting a 6,000-bbl. refinery at Harburg, near Hamburg, Germany, for the Pan American Petroleum & Transport Co. It also is completing pipe still distillation units at Ploesti, Rumania, for the Phoenix Oil & Transport Co.

WRENCH BUSINESS PURCHASED

The Trimont Manufacturing Co., Roxbury, Mass., has purchased the Stillson wrench business of the Moore Drop Forging Co., Springfield, Mass., and will continue the manufacture of both the original pattern and the popular Stillson wrenches. The Morco original pattern Stillson, under Trimont manufacture will be known as the Sando original pattern Stillson, and the Morco popular will be known as the Morco popular.

NEW POWER PLANT INSTALLED

The Austin Co., Cleveland, has finished a complete new power plant at the Coraopolis, Pa., refinery of the Canfield Oil Co., also Cleveland. The site adjoins the west end of the old property. The Austin Co. completed this boiler plant on the new site and made connection to Canfield's steam lines without dismantling the old boiler plant. The load was switched from the old plant to the new without interrupting the production. It is planned to remove the old plant at once, since the new boiler plant is carrying the entire load.

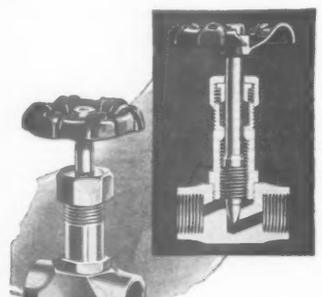
BEND IN WELDED PIPE MADE WITH TUBE-TURN

Tube-turns made by Tube-Turns, Inc., Louisville, Ky., are seamless drawn fittings for welded coils and piping of all kinds, made by a new process. They are made in arcs of any number of degrees, in virtually any thickness and of almost any material, such as aluminum, brass, copper, nickel, steel and special noncorrosive alloys. They are supplied with ends square or bevel cut. Flanges can be welded or rolled on. Short tangents can be provided by an additional process. Long tangents can be welded on. Tube-turns are used to provide any kind of elbow, offset, branch or return bend in welded piping, coils, headers and manifolds or wherever welded piping is used or might be used.

Tube-turns are made by forcing lengths of seamless tubing over a hornshaped mandrel under an annealing heat. As the original tube is driven over the mandrel the stretching action caused by the shape of the mandrel draws the excess metal away from the shortened inside wall circumferentially toward the outside wall. There is no buckling of the inside wall because all excess metal from this point has been drawn toward the outside wall and is used to increase the pipe size of the Tube-turn.

VALVE FOR APPLIANCES NEEDING FINE CONTROL

The Pratt & Cady Division of the Reading Steel Casting Co., Bridgeport, Conn., has developed a new type of needle valve particularly designed for small refrigerating units, oil burners, measuring



devices, and other appliances requiring close control of liquids or gases. According to the manufacturers, the features of this valve are its strength and ability to give long service under severe conditions. The valve is made of high-test bar stock bronze, strong and close grained. The handwheel is of certified malleable iron. The valves can be had in both the angle and globe types.

"CHIP CHASER" ANNOUNCED

A new complete ratchet threading outfit for the smaller sizes of pipe and named the "Chip Chaser" recently developed by the Oster Manufacturing Co. of Cleveland, Ohio, has features of interest. Its capacity covers all sizes of pipe from one-eighth to three-quarters inch. The outfit consists of a ratchet handle and five separate die heads, one for each pipe size, covering the range of the tool, all compactly assembled in a convenient carrying case which makes a complete kit and reduces the danger of losing or misplacing the individual die heads. Other features which the design of the tool makes possible are its full chip clearance and ease of oiling.

HOWE COMPANY OFFERS STRONG ROTARY CHAINS

Two new rotary chains are announced by the Howe Chain Co., Muskegon, Mich. These new chains, known as XXS class (signifying "double excess"), are desig-

nated as the XXS-1240 and the XXS-40, with respective strengths of 150,000 and 70,000 pounds. The chains are of the same dimensions and will run on the same wheels as the corresponding sizes of XS class.

All parts are of chrome nickel steel, heat treated. The bushings and pins are press fitted into the side-bars. The press fits increase durability. Rollers are made from solid bar and heat treated. These chains, which are said to have been thoroughly tested in the field, will be for sale by the Howe Chain Co., and by the Republic Supply Co.

DWIGHT NOW WITH LUCEY

J. N. Dwight has been added to the organization of the Lucey Products Corp. with headquarters in Tulsa. The Lucey Products Corp. has made arrangements with the Buffalo Bolt Co. of Buffalo, N. Y., to introduce the latter concern's Buffalo pull rods and sucker rods. Mr. Dwight will be in charge of this department. He formerly was connected with the surface equipment department of the International Supply Co. D. F. O'Rourke, in the credit department of the Lucey Products Corp. for several years, has been appointed assistant treasurer and will be in charge of the credit department with headquarters in Tulsa.

TRUCKS CONQUER KALAHARA

Traversing previously unexplored wildernesses of Africa is an accomplishment of American-made motor trucks, which, according to Dr. Will J. Cameron, Chicago explorer, are displacing the camel as the "ship of the desert." A recent triumph was staged in Kalahara desert, vast regions of which were searched scientifically by the Cameron-Cadle expedition, headed by Doctor Cameron. The motor trucks he selected for the hazardous journey were manufactured by the Diamond T Motor Car Co. of Chicago.

MADE OKLAHOMA DEALER

The C. F. Camp Co., 221 East Archer Street, Tulsa, has been made Oklahoma dealer for the Caterpillar Tractor and the Russell Grader, the former being manufactured at Peoria, Ill., and San Leandro, Calif., and the latter at Minneapolis. E. E. Robbins of the C. F. Camp Co. made the arrangements for his concern during a trip to Peoria the past week.

MERCO NORDSTROM HAS NEW DESIGN IN VALVE

Representing a departure in design, a new line of plug cocks designated as Venturi valves, is offered by the Merco Nordstrom Valve Co., Oakland, Calif., and Belleville, N. J.

Before application of the principle of pressure lubrication, it was not feasible, according to valve engineers, to build plug cocks in sizes larger than 6-inch, owing to the difficulty of operating those of large size with their tendency to stick and bind. The Nordstrom method of pressure lubrication permits the jacking up of the plug by hydraulic pressure of the lubricant, and at the same time the lubricant seals and lubricates the ground surfaces. It is announced that within the application of this principle plug cocks are now available in sizes up to 30-inch, this making use of the inherent advantages of the plug type of valve.

By making use of the Venturi principle of static head recovery, it has been found that the larger sizes of plug cocks may be advantageously manufactured with reduced cross-sectional port area and still retain high efficiency.

The company has prepared a series of charts showing pressure drops incurred in the various sizes of Venturi valves for different fluids and conditions of line flow, particularly for gas under various pressures. These charts are available for engineers interested in appraising the merits of this late development in plug cocks.

TESTING ASSOCIATION FOR OIL MEN FORMED

The United Testing Association, Inc., being formed in Pittsburgh, Pa., is designed to help oil producers and refiners, engineering and manufacturing companies in purchasing material and equipment in the Pittsburgh district. Each member company may have all pipe, tubes, castings, tanks, steel, tank cars, pumps, structural steel, etc., purchased in the mills and fabricating plants in and around the Pittsburgh district, inspected, tested, expedited and reported upon by experienced inspectors. Each member's work not aggregating more than one complete month's work will be handled for the membership fee of $100. The work need not be continuous but may be distributed throughout the entire year, the total work in aggregate not exceeding one complete month's service. The association will be governed by a board of personal representatives selected yearly from member companies. It will be of nonprofit type, according to the organizers, so that it can serve its members efficiently and with the confidence of all of its members. The headquarters of the United Testing Association, Inc., at present is 5854 Forbes Street, Pittsburgh, Pa.

DRIVEN BY GASOLINE ENGINE

Even locomotive cranes are driven now by gasoline engine. The Link-Belt Co., Chicago, has announced a complete line of locomotive cranes designed especially for gasoline engine, Diesel engine or electric motor drive, to be known as the "L" type cranes. They are not merely modified steam cranes, but are designed throughout for the conditions imposed by a power unit running continuously at its full operating speed.

The machinery and its arrangement are particularly adapted to direct engine or motor drive, and all clutches, brakes, shafts, bearings, gears, etc., are oversize in order to give the best operating results and the lowest possible maintenance expense, under these conditions.

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

PRODUCTION PER ACRE FOOT

Will you kindly advise me where I can obtain authentic statistics covering the accepted average production per acre of oil sands of various thicknesses?

I believe the general opinion is that oil production averages approximately 10,000 bbls. per acre, but I am under the impression that this covers an average for all thicknesses of sands, both thick and thin.

I realize that the productivity of various sands differs, some being richer in production than others, but it occurs to me that I have seen somewhere, the information I am looking for.

Any information you can give me on this subject will be much appreciated, and I enclose an addressed stamped envelope for reply.—H. C. H.

It is possible to determine the production per acre foot when one knows the acreage, the average thickness of a given sand and the production of the pool in question; but in giving the per acre recovery of pools or fields the figures rarely represent more than the production and the area of the producing structure without regard to the number of producing sands or their thickness.

In some fields sands lie in lenses, like those of California where there may be 1,000 feet or more of so-called producing formation, which in reality is merely 1,000 feet containing sand lenses. In the Garber Field in Oklahoma there are 10 producing sands between 900 feet and 2,000 feet and several below 2,000 feet. There are about 14 producing sands in that area including the deepest Wilcox formation. Hewitt, in Oklahoma, is another field of numerous sands. The Spindletop Field in Texas, a salt dome, produced largely from deeper sand 25 years after the pool was opened. Unless it is known just which sand a given amount of oil is coming from in one of these many-sand fields it would be quite impossible to ascertain a per acre foot recovery, while at the same time it is easy enough to ascertain a mere per acre recovery.

In the August 16, 1928, issue of The Oil and Gas Journal there was published a table of the leading American fields showing total production, acreage and per acre recovery. There was a variation of 3,102 bbls. per acre from the 85,000-acre Bradford, Pa., structure, to 233,441 bbls. per acre from the Spindletop 390-acre salt dome. The table will be brought further up to date in an early issue of The Oil and Gas Journal.

ON GETTING STARTED

Through your advice I would be glad to secure information which I hope will enlighten me.

I have had one year of college work and am at present studying petroleum engineering with the ——— at ———. What is their status in regard to petroleum engineering?

Would it be possible upon completion of this course to secure employment with oil companies? Do you know of any other means by which I might further my knowledge of petroleum engineering? That is, through any special training given by any oil companies?

Would you kindly inform me as to what the A.P.I. constitutes? Do they offer any means of learning on this subject? Or could they start one who wants to begin in the engineering department?

Would like for these questions to be answered by return mail if possible. I am an interested reader of your Oil and Gas Journal.

Thanking you for your inconvenience and your information.—F. G. B.

Correspondence courses are recommended for those who are unable to attend the regular universities or technical schools but this department does not pass upon the status or relative merits of any of the schools giving courses in petroleum engineering.

In regard to your securing employment with an oil company. If you are taking a correspondence course you probably can obtain work with an oil company while pursuing your studies. The best way to start in petroleum engineering is to get a field job with an oil or gas company as soon as you finish school or while you are studying and if you make good you will not have to worry about a job. Success in this line of work depends more upon the man than it does upon the school, and the fact that a man has completed a course in petroleum engineering can not assure him a job unless he has the other stuff to go with the book knowledge. Practical experience, hard work and common sense are the best assurance of a job.

Some oil companies employ young technical graduates as junior engineers and give them a chance to work in different departments at small salaries while they are learning the business. Some other companies make it a practice to employ such young men in field jobs and let them take the rough stuff along with the other fellows until they demonstrate their ability to stick and work up. Both ways are good and both are full of hard work.

The American Petroleum Institute (or A.P.I.), 250 Park Avenue, New York City, is an organization composed of the leaders and workers in all branches of the petroleum industry to further the interests of this great industry in all possible ways. It is not probable that the institute can help you in getting started, except possibly through its publications upon petroleum engineering subjects which should be most valuable to any student of petroleum engineering.

The best way to get started is to get out into an active oil country and get a field job. Look for a job rather than a position. And after you get a job, keep on studying and using your head. In your spare time make notes on what you are learning, and on things you want to learn, and after a few years you will work up to a position if you have the right stuff. At least 75 per cent of the oil company executives started out with a menial job of some kind and worked up.

You will probably be interested in the question by H. H. and the answer prepared by this department appearing in Field Problems and Their Solution in The Oil and Gas Journal of January 24, 1929. The references given there to good books and to other publications may be useful to you.

ENGINEERS DIFFER ON THIS

Is it true that in deep pumping wells the length of stroke of the polished rod is no indication of the length of stroke of the plunger? How could any such lack of relationship exist between the length of stroke at the top and bottom of the same string of sucker rods?—S. S. K.

This subject is under investigation by many engineers and there is disagreement regarding it. It has been reported to this department that stretching and contracting in sucker rods of as much as 40 inches in wells 4,000 feet or more in depth is not unusual. The tubing also is subject to stretching and contraction as the fluid load is carried first by the standing valve and then by the traveling valve so that tubing strokes of 5 inches or more from this cause have been reported.

The subject is complicated further by the fact that when the fluid load on the sucker rods is relieved at the beginning of the down stroke of the polished rod, the long string of rods undergoes an extensive contraction so that while the polished rod is moving downward the plunger is actually moving upward owing to the contraction of the rods.

From this it is contended by some engineers that deep wells may be operated at such lengths and speeds of stroke that the movements of the plunger bear no apparent relation to the stroke of the polished rod. It generally is recognized now that deep-well pumping problems are both difficult and important and that they must be solved more definitely before consistently good results can be obtained in pumping such wells.

WRITINGS ON REPRESSURING

I have read with considerable interest in The Oil and Gas Journal the articles on repressuring of oil wells, and would like to know more about it. Can you tell me whether there is a book published covering the different methods of treatment? If so, where can it be procured? Any information you can give me in this matter will be greatly appreciated.—G. F.

Probably the best book giving information upon repressuring oil sands is United States Bureau of Mines bulletin 148, "Methods for Increasing the Recovery From Oil Sands," by J. A. Lewis. It can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at nominal cost. This bulletin was published in 1917 and there have been many advances and improvements in repressuring operations since that time, but so far as this department is aware, no books presenting these better methods have appeared. Many short papers on repressuring have been published. Some of these can be obtained free of charge by applying to the United tates Bureau of Mines, Petroleum Experiment Station, Bartlesville, Okla.

WATER SHUTOFF FAILURES

My company has had three failures in trying to make a tight water shutoff by cementing in a string of 8¼-inch casing. Are these failures likely to be caused by salt water acting chemically upon the cement and spoiling it before it has time to set? What other causes may be responsible for our trouble? What should we do to get a tight water shutoff?—A. T. W.

This question cannot be answered fully because too little information has been submitted. Most oil well cementing failures result from improper methods or from agitation of the cement by either water or gas or both, before the cement has set. The cement should be quiescent while setting and all of the cement should be in place and absolutely at rest within two hours after the first mixing of cement has started.

Oil field waters in the Mid-Continent fields generally contain calcium and magnesium chlorides that will react with the cement if it is improperly run. If the water becomes intimately mixed with the cement it may react with it chemically as well as cause a bad mechanical condition in which the cement is not watertight. Both calcium and magnesium chlorides tend to hasten the setting of cement, and many operators express the opinion that oil well waters containing these salts are detrimental to cement.

If a large body of freshly mixed cement is forced into place so as to displace the water as it takes its place back of the casing, it is not probable that the quality of the water will make any serious difference because the water and cement can react with each other only where the two come into contact at the frontier of the advancing cement. If, however, the casing is not tightly seated after the cement is placed, water from the formations around or above the cement may channel through it, making it useless. Similarly, gas may pass through the cement, agitating it and preventing a proper set. Cement that has failed to set properly because of agitation by gas frequently has a chalky white appearance and is light and porous like pumice.

The primary requirement in oil well cementing is to keep the freshly run cement quiescent until it has set. This generally can be accomplished by keeping a sufficient head of fluid in the well to kill any flow of gas, oil or water and also by using a tight casinghead and applying and holding pressure with pumps. It is also possible that the setting of the cement is unduly hastened by deep well temperatures or by using improper amounts of chemical accelerators. This can be detected by simple experiments.

Several years ago hydraulic lime came into extensive use in oil well cementing in the California fields. The usual method was to run hydraulic lime immediately ahead of the cement. This allowed the cement to enter and set in a medium already fully saturated with lime, so that there was no tendency of the water to reach with or dissolve the cement. The surplus of lime tended to plug off any water leaks that might start through the cement. Hydraulic lime is especially useful in mudding off water before the cement is run, because it reacts with the rock constituents and forms a swelling jelly that plugs the pores of water sands. The use of hydraulic lime has been described by F. B. Tough in United States Bureau of Mines Bulletin 163, "Methods of Shutting Off Water in Oil and Gas Wells."

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THE best of modern practice and the most exacting care in handling oil well equipment is not alone sufficient to assure successful results in drilling. Quality of material always plays a tremendously important part. For smooth performance, present-day drilling requires pipe of extraordinary strength to resist wear and tear incident to deeper wells and greater speeds. There is no substitute for this quality in drill pipe. Many years of experience in manufacture and close observation of field problems have enabled this company to develop drill pipe of exceptional high standard in performance.

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Effect of Shutting In Offset Wells

Easy to Check Overproduction in Flush Period, but Another Matter to Shut in Producers Later and Keep Offsets on Production

By C. M. Nickerson*
Petroleum Engineer, United States Navy Department

In times of overproduction such as the operators have been struggling against for the past several years it is the practice of the oil industry to shut in certain wells in order to reduce the flood of oil. The purpose of this paper is to present certain variations in production of oil wells when the offset wells are shut in. The scope of the study has been confined to California fields, and more especially to those of the San Joaquin Valley.

The accepted definition of a shut-in well is a well where production has been suspended by closing in the casinghead and tubing or by cessation of pumping. The immediate effect of such a procedure, of course, is to reduce the oil production from the lease, which is the result desired. However, it appears that certain types of wells vary widely in production of oil, gas and gasoline after adjacent wells have been shut in, which variation has a very material effect on the ultimate recovery of oil from the property. The increase or decrease in the oil production itself may not be of sufficient volume to occasion comment, but wide fluctuations in the gas and gasoline recovery under the changed conditions are of the utmost importance in the future recovery of oil.

The scope of this paper includes: (1) the effect on producing oil wells of shutting in offset wells, the wells being studied in three groups arranged according to their relative stages of depletion; (2) probable source of excess gas and the effect on the ultimate recovery of oil; (3) suggested procedure when wells are shut in; (4) methods that could be employed to prevent undue migration of gas from the shut-in area; and (5) the need for future studies of the situation.

Three Classes of Producing Oil Wells

For the purposes of this paper producing wells in California have been arranged in three groups according to the age of the well, or to the relative stage of depletion of the producing zones. The first group consists of those wells with a high fluid level, or in other words those wells whose fluid levels are a considerable distance above the top of the perforations. This type of well is in the flush period of its life and ordinarily produces considerable volumes of wet gas, and is either flowing or has been placed on the beam a relatively short while. The second group consists of those wells with the fluid level just above, or even a short distance below, the top of the perforations. These wells have been producing for a considerable period, but still have substantial gas and gasoline production. In this group the gas is the major factor in forcing the oil to the well. In the third group have been placed those wells that are in the last period of commercial production. This type of well produces little if any gas; the production is necessarily very small, and the force of gravity and the driving effect of encroaching edgewater are the main factors in oil recovery. Although this paper is mainly concerned with the second group, the effect of shutting in offset wells will be considered on each group in the order of the above classification.

Subsurface Conditions

In order to give a clear conception of the movements of oil through the producing zones of California oil fields the average subsurface conditions are mentioned briefly.

In most of the old fields of California, oil is found in loose, unconsolidated sands and in sandy shales. The texture may vary from very fine sand to that which is fairly coarse. The thickness of the zone may vary from one to several hundred feet, the sand strata alternating with thin shale bodies. Unless intermediate edgewater is encountered the entire thickness of the producing zone is open in the well through the perforated casing (Figure 1.) Each of the separate bodies of oil sand may have its own peculiar production characteristics, but ordinarily as much of the zone is open to production as is possible. Quite often in the early history of a field a well is placed on production from the upper portion of the zone, and later when production from that particular zone is partially depleted and when more accurate geological information has been compiled, it is deepened

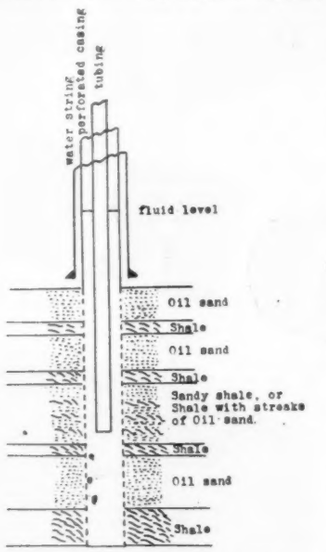

Figure 1—Average subsurface conditions in California oil fields.

to lower productive strata in the same zone.

The wells studied in this paper are located in fields where the sands have considerable lateral extent, i.e., migration of oil and gas from one location to another is the ordinary occurrence, and is not prevented by any lenticular character of the oil sands.

To sum up the above: the producing wells in a field where a shutting-in policy has been inaugurated have partially depleted the upper strata of the zone, because this portion has been on production for a longer period than the lower strata of the zone, which therefore remains more prolific. Due to large areal extent of the oil sands the shutting in of an offset well tends to increase the drainage area of the wells continued on production, while the drilling of the wells through the entire thickness of the producing horizon opens artificial channels between the several individual strata, which may under certain conditions be the course of the migration of oil and gas from one portion of the zone to another and perhaps even from well to well.

Effect in Areas of High Fluid Levels

During the flowing stage of flush production period in the life of the well the reservoir pressure is decreasing rapidly, especially in the area immediately surrounding the producing well. The fluid levels in such young wells are high, ranging from the surface to a considerable distance above the top of the perforations. Even after such wells have been placed on the pump, they are still ordinarily considered as in the flush state of production until the fluid levels have been materially reduced. This type of well has been placed in group 1 for purposes of comparison.

The subsurface conditions in such cases show the sands to be depleted only partially of the oil content. The face of the sand is still covered with oil, since the fluid level is well up in the casing, and the reservoir pressure is still rather high (Figure 1.) The production of oil is accompanied by considerable volume of wet gas with a good gasoline content.

When wells in this group are shut in, the offset wells continued on production have an increased drainage area, and ordinarily show an increase in oil production. The gas and gasoline production does not vary to any material extent, although the gas-oil ratio may be reduced somewhat. Under shut-in conditions for wells in this classification the production characteristics tend to approach those obtaining in the first few months of the life of the well, particularly in reference to gas production, its gasoline content, and the gas-oil ratio.

If wells in group 1, i.e., in the flush stage of production, are shut in, there may be a marked decrease in oil recovery when they are again returned to production. However, this paper will not discuss the probability of changes in capacity of such shut-in wells, since it is concerned with the effect on the offsetting wells which are not shut in. In California it is the practice to shut in wells on fairly well depleted properties, and to continue producing those wells in other fields which are in the early stages of their flush period. Lease requirements and offsetting conditions are more apt to require continuing young wells on production than wells on those properties which have yielded a substantial portion of their oil content.

In conclusion, the effect on wells of group 1 which are not shut in include slightly increased oil recovery, corresponding increase in gross gas production, with slightly smaller gas-oil ratios, and in some cases an increase in the gasoline content of the wet gas. Due to the decrease in gas-oil ratios there appears to be an ultimate beneficial effect on the property as a whole, since the ultimate recovery of oil is increased.

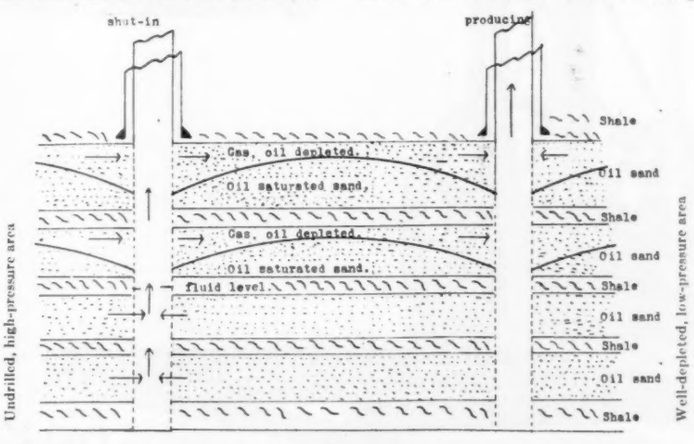

Figure 2—Subsurface conditions where wells have been producing from upper portion of zone for a considerable period of time, before being deepened to lower portion of zone. Arrows indicate possible course of gas from shut-in well to producing well.

Effect in Areas of Low Fluid Levels

Under the common drilling practice in California fields an oil property usually reaches its peak of flush production in the first year or two of its life, which indicates that the individual wells are also in the flush period of their life during the first two years. Following this period the wells decline rapidly, after which the decline curve flattens out accompanied by but a small decrease in oil recovery each month. There are still substantial volumes of wet gas obtained with the oil, but the property is considered as having passed its peak. This period covers roughly about 20 years, or until the lease is considered depleted of its oil and gas content. Wells which have passed their peak of flush production and are now undergoing a slow decline each month have been placed in group 2 for the purpose of discussion. Of course, there is a gradual change in production characteristics when a well passes from one classification to the other, a fact which must be borne in mind in considering the conclusions of this study.

In wells in group 2 the fluid level is commonly well below the top of the perforated casing or oil string, the production declines slightly but steadily each month, and the gas and gasoline recovery are of considerable volume. When wells that may be classified as group 2 are shut in, it has been found that the offset wells that are continued on production have important changes in volume of production, which unless clearly understood and properly controlled may adversely affect the ultimate recovery of petroleum from the lease.

In the Elk Hills oil field, California, a very extensive program of curtailing production has been in effect for about 18 months, about 50 per cent of the producing wells having been shut in. An ideal situation for a study of this kind is obtained here with undrilled, proved areas offsetting the shut-in wells on one side and producing wells offsetting them on the other. The effect of the undrilled, proved areas on the producing wells serve merely to magnify the changes in production characteristics, which would occur in any other area classified under group 2.

Face of Lower Sands Covered

The general subsurface conditions have been illustrated in Figure 2, which shows the writer's conception of the partly drained oil sands in the upper portion of the hole and the well-saturated oil sands in the lower portion. The face of these lower sands is covered, since the fluid level is below the top of the perforations, while the face of the sands first encountered in drilling is uncovered due to the low fluid level, and undoubtedly have little oil in the upper portion

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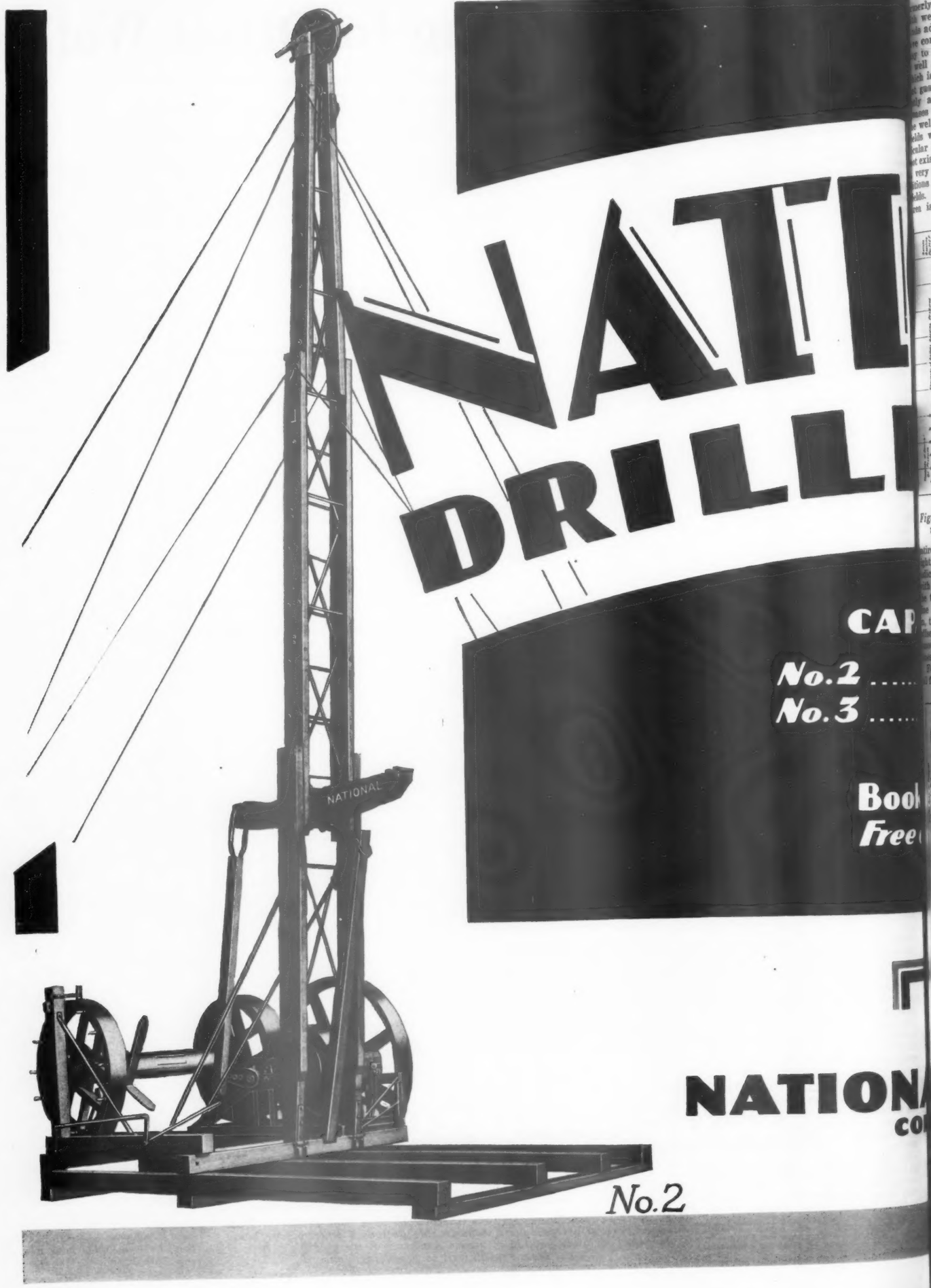

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their individual strata. The voids erly filled with oil are now filled wet gas that has escaped from the ds adjacent to the well. If the sands e considerable areal extent, it is very to conceive of a channel from well well at the upper portion of the zone, ch is depleted of oil and is filled with gas. It is this channel that appar- accounts for the remarkable in- se in gas and gasoline recovery by wells which offset those shut in. In lds where the producing zone is len- ular in character such a channel could exist except in a limited area between very few wells. However, these con- tions obtain in but few California lds. In Figure 2 the undrilled, proved es is indicated to the left, with the

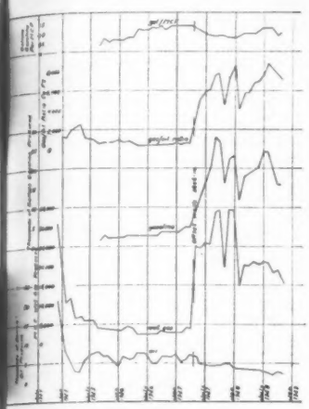

Figure 3—Total monthly production curves, individual well.

irely drilled, well-depleted area to the ht. The rows of shut-in wells are not imited by other than the one well log, th the wells on production shown by theoretical log on the right. If one e of wells or several lines were shut the effect would be the same on the tting line of wells or in decreasing unts on several adjacent offsetting s of wells.

For the ideal situation in the Elk Hills field, production curves have been pre-

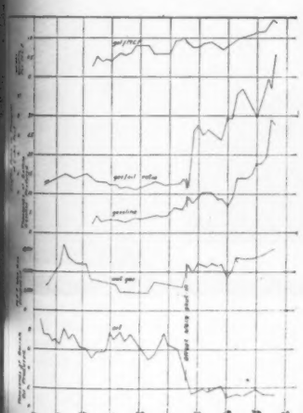

Figure 4—Total monthly production curves, individual well.

pared for the total production from two lines of producing wells that offset two lines of wells that were shut in. Indi- dual well curves for certain of these producing wells have been prepared, which serve to illustrate better the ef- ects noted. These are discussed in de- ail in the following paragraphs.

Gas-Oil Ratio Increased

The monthly production data for an individual well in this field which offsets a group of shut-in wells are given in Figure 3. When certain wells were shut in on April 15, 1927, the offsetting wells showed an immediate increase in the vol- ume of gas produced, a decrease in the oil production, and also a remarkable in- crease in gallons of natural-gas gasoline recovered from the wet gas. With these three values as a basis several ratios were computed and plotted as given in Figure 3. An analysis of these shows that the gas-oil ratio increased to more than nine times the former average value prior to the shutdown, while the gallons of gasoline per 1,000 cubic feet decreased to approximately two-thirds of its former value, although the gross gallons of gasoline obtained from this well increased about sixfold. Operating conditions remained the same from about January 1, 1926, the well having been placed on the pump at this time.

A study of Figure 3 shows that a considerable volume of gas came into the hole immediately following the shutting-in of the offsetting wells, that this gas had a lower gasoline content than that obtaining prior to April 15, 1927, and that this excess volume of gas was by-passing the oil in the productive zone, since the barrels of oil did not increase. The slight decrease in oil production may have been due to the excess gas coming into the hole at its upper levels under a sufficiently greater pressure than that in the lower portions of the well, where the greater portion of the oil is obtained, to exert a back pressure on these lower sands. The same decrease in oil production could have been obtained in this well by increasing the back pressure, although it is rather doubtful if the volume of excess gas could have been decreased to any material extent.

Excess Volume of Wet Gas Did No Work

Similar production curves for a well in this group and in the same field are given in Figure 4. Certain of the effects mentioned above are emphasized in the

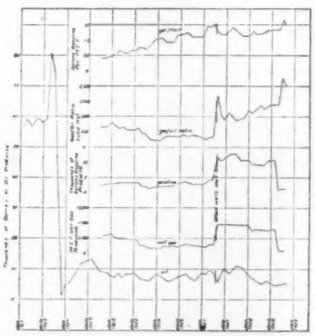

Figure 5—Total monthly production curves, individual well.

case of this individual well. The oil production decreased to a very considerable extent; the gas production increased to about twice its former value; the gallons of gasoline recovered increased about 50 per cent; the gas-oil ratio increased to about seven times its former average value, while the gallons of gasoline per 1,000 cubic feet of wet gas decreased somewhat, but would average about the same as before over a period of a year. Again a study of this individual well shows that large quantities of wet gas had access to the hole and that the oil production was decreased, probably due to the pressure against the producing oil sands of the incoming gas. The excess volume of wet gas certainly did no work in bringing additional oil into the hole, and may be held to have by-passed the oil back in the sands, due to the subsurface conditions illustrating Figure 2.

Production curves for a well on the same property operating under the same conditions are given in Figure 5, which show a slightly different effect from shutting in the offset wells than has previously been noted. In this case the oil production for each month increased somewhat and remained above the projected decline curve for about a year following the shutdown; the gas production increased about three times its former value; the gallons of gasoline accompanying the wet gas increased about three times. The gas-oil ratio immediately reached a peak, and the second month following the shutdown settled down to about three times the normal value, while the gallons of gasoline per 1,000 cubic feet of wet gas did not show any undue variation over the year's period.

In the case of this well the excess volume of gas obtained following the shutting-in program probably brought a considerable volume of oil into the hole, although the efficiency of the well was far below its former value due to the increase of the gas-oil ratio. The great increase in the gallons recovered showed that the gas was picking up light fractions of the oil through which it passed in about the same ratio as before the shutdown, as brought out by the gallons per 1,000 cubic foot curve.

More Oil, Gas and Gasoline

Curves for another well in this group with very similar production characteristics are given in Figure 6. In this case

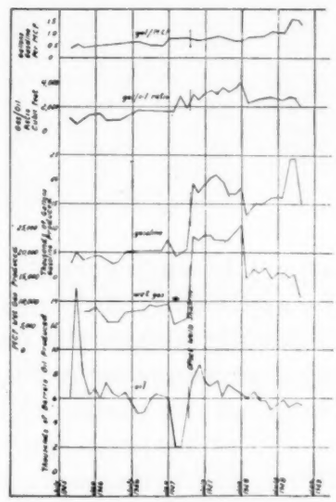

Figure 6—Total monthly production curves, individual well.

the oil production was increased by a very appreciable amount and the gas and gasoline production was about quadrupled. The gas-oil ratio increased about one-half, while the gallons per 1,000 cubic feet remained about the same. It is noteworthy that in the months following the shutdown the gas-oil ratio was steadily increasing, while the oil production was just as steadily falling off. The larger volume of gas obtained from this well apparently increased the oil production, but at the expense of efficiency, which became less each month as the volume of gas increased.

Figure 7 illustrates production curves of an individual well in this same group located on the same property as the wells previously discussed. The effect in this instance was slightly different from those previously discussed. The oil production followed the normal decline curve with but little variation; the gas production increased, as might be expected, to about twice its former volume; the gallons of gasoline recovered increased to about twice the former amount. The gas-oil ratio increased from 1,500 cubic feet per barrel of oil to an average of about 3,400 cubic feet. The gallons of gasoline per 1,000 cubic feet of wet gas remained about the same. As before, a large volume of gas had access to the well, but it did not bring any oil with it, probably by-passing the oil in the sands some distance from this location.

In order to show the effect on a group of producing wells that are offset by an equal number of shut-in wells, curves

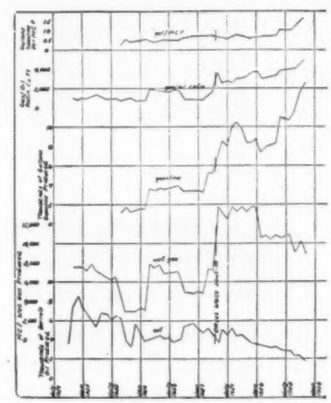

Figure 7—Total monthly production curves, individual well.

have been prepared for the several factors which are given in Figure 8. These curves are based on the total monthly production from 17 wells located on a small lease in the Elk Hills oil field. The several individual wells previously discussed are located on this lease. The property had passed its flush stage of production and is now in the period of slow decline.

Gas-Oil Ratio Much Higher

Figure 8 shows that when the offsetting wells were shut in on April 15, 1927, the monthly oil production steadily increased for several months and then resumed the normal decline. The gas production from the lease about doubled in a very few months, and after the period of a year was still abnormally high. The gasoline production dropped

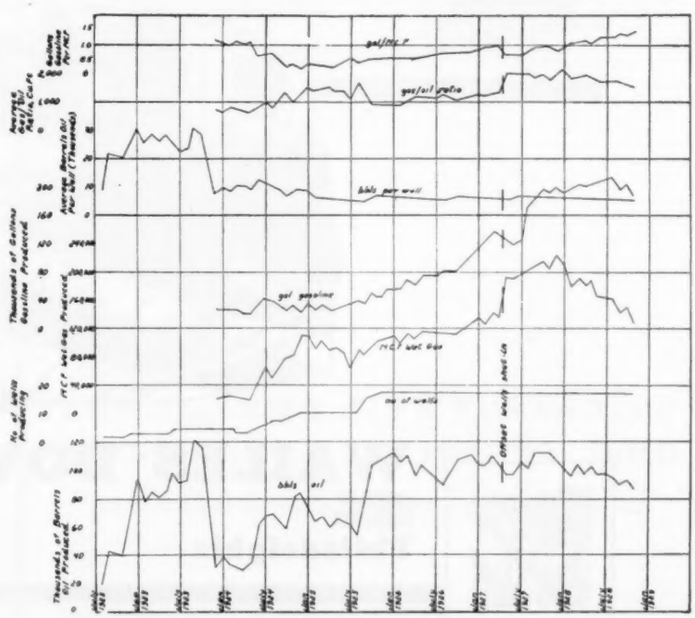

Figure 8—Total monthly production curves for lease, 17 wells.

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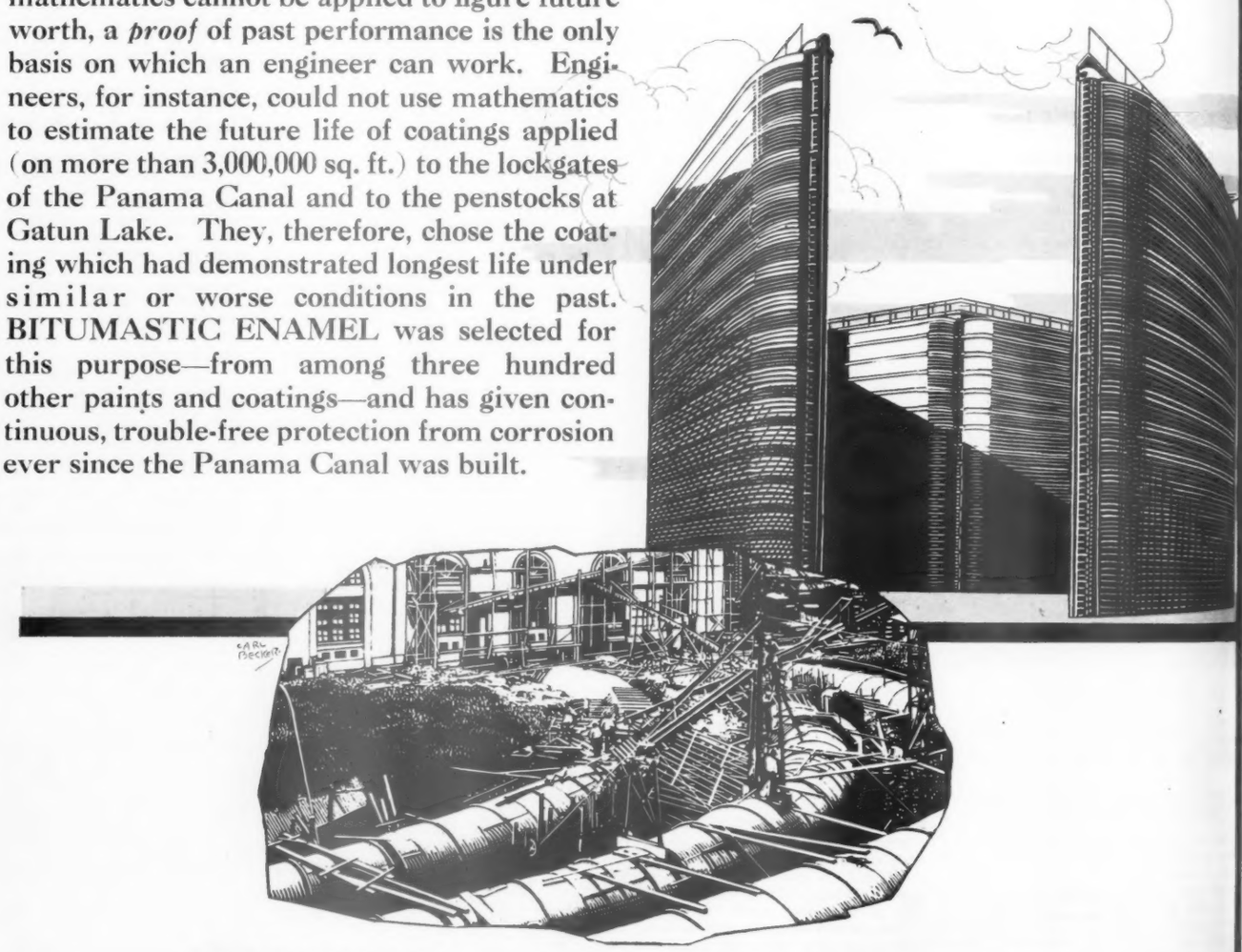
Guesswork plays no part in engineering. If mathematics cannot be applied to figure future worth, a *proof* of past performance is the only basis on which an engineer can work. Engineers, for instance, could not use mathematics to estimate the future life of coatings applied (on more than 3,000,000 sq. ft.) to the lockgates of the Panama Canal and to the penstocks at Gatun Lake. They, therefore, chose the coating which had demonstrated longest life under similar or worse conditions in the past. BITUMASTIC ENAMEL was selected for this purpose—from among three hundred other paints and coatings—and has given continuous, trouble-free protection from corrosion ever since the Panama Canal was built.



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off for about three months following the shut-in and then increased 50 per cent over the expected volume. The gas-oil ratio shows that prior to the shutting-in of the offset wells 1,300 feet of gas were produced with each barrel of oil, while immediately following the date of shut in 2,000 feet of gas accompanied each barrel of oil. It is well to bear in mind in considering Figure 8 that these curves show the average effect on the 17 wells on this property, and the individual wells previously discussed may vary from the trend of the graphs for the entire property.

In summation, the effect on producing wells of shutting in offsets in areas where the flush period of production is past includes a slight increase in oil production, a very substantial increase in gas and gasoline production, and a large increase in the gas-oil ratio. Although there is an increase in oil produced for a few months, the great increase in the gas-oil ratio shows that this excess oil is obtained at the cost of efficient production.

Low Fluid Levels and Depleted Gas

When wells have about reached the limit of commercial production, the force of gravity is the prime mover in bringing the oil into the hole. Such wells produce little if any gas. If wells are shut in on a property placed in this classification, about the only effect resulting is the increase of the drainage area of each well continued on production. There may be a small increase in oil production, but ordinarily there will be no change. In California this type of property in many instances is shut in for as long as several years, to await an increase in the price of oil that will justify continued operation of the lease. For wells in this group it will be sufficient to conclude that little change may be expected in volume of production from individual wells when the offset wells are shut in.

Effect on Ultimate Recovery of Oil

Since the ultimate recovery of oil depends to a very material extent on the volume of gas accompanying it, it is of the utmost importance that gas-oil ratios be maintained as low as possible, especially on leases where shut-in wells may be offsetting wells that are continued on production. The changes in production characteristics that may accompany a shutting-in program on leases partially depleted of their oil content have been mentioned in the previous part of this paper. The source of the excess gas, and the channel by which it reaches the producing well, must be considered before any remedial measures may be taken to maintain efficient recovery of oil.

As mentioned under "subsurface conditions" the upper portion of the oil zone is quite often partially depleted of its oil content, the voids in the oil sands now being filled with wet gas. These conditions are illustrated in Figure 2, which shows the upper portion of the individual strata of oil sand filled with oil and gas that have separated into two zones due to the forces of gravity and capillary attraction. The arrows indicate the possible channels by which the wet gas may migrate from one well that is shut in to an adjoining well that is continued on production.

From a consideration of the actual monthly production graphs previously discussed the conclusion is inevitable that a large volume of gas had access to the producing well and that this excess gas did not bring any extra volumes of oil with it, indicating by-passing of the gas. In order for the gas to by-pass there must have been a channel which contained little oil through which the gas could reach the producing well without doing any useful work. While by-passing the oil in the sands the gas picked up the lighter fractions resulting in an increase in the volume of natural-gas gasoline produced by the well. It is not necessary to conclude that the excess gas by-passed the oil in the upper portion of the zone only, for it may also have by-passed it in the lower portions of the zone, reached the shut-in well, migrated vertically to the upper portion of the zone, and then traveled horizontally to the near-by producing well.

Gas By-Passing the Oil

If the gas had traveled horizontally in the lower portion of the oil zone, it would have forced a certain volume of oil to the producing well, thus increasing the volume of oil production. In cases where this apparently has occurred the shutting in of a well has increased the drainage area of the offset producing well. However, the very substantial increase in gas production with increases in the gas-oil ratio leads to the conclusion that the gas was by-passing the oil surrounding the shut-in well, and reaching the producing well without doing any appreciable useful work. The low fluid levels, i.e., below the top of the perforations, in the shut-in wells facilitated the migration of the gas from the lower portions of the zone to the upper portion where it traveled horizontally to the offset well.

To recapitulate, the source of the excess gas was from the zone surrounding the shut-in well, and the channels by which the excess gas traveled to the producing well are indicated by arrows in Figure 2, which shows the upper portion of the zone partially depleted of its oil content and now filled with wet gas. Although some of the excess gas may have traveled horizontally through the lower portions of the zone, as shown by the increase in oil production from certain of the wells herein considered, the major portion of the gas performed no useful work in bringing oil to the hole, due to by-passing the oil back in the sands surrounding the shut-in wells. The The production of such excess quantities of gas without a corresponding increase in oil recovery indicates that the ultimate recovery of oil from this property has been considerably decreased.

Suggested Procedure in Shut-in Areas

When wells are shut in, the usual method in recording production data from the offsetting producing wells should be carefully studied in order to guarantee accurate daily data on the production of oil, of wet gas, and of the gasoline content of the wet gas. The average operator pays insufficient attention to these details of production engineering at the present time.

In areas having a large number of shut-in wells, the daily oil production should be gauged for the individual wells. A 24-hour gas-production test should be obtained for each well, with frequent determinations of the gasoline content of the wet gas. The common practice of taking a test of the gas production once a month, or even at intervals of several months, leads to inaccurate proration of the total gas production from the lease, which in turn greatly handicaps the petroleum engineer in his efforts to obtain the largest possible ultimate recovery of oil. The casinghead pressure on the shut-in wells should be noted frequently, and if practical the changes in fluid level should be recorded. In this manner the true reservoir pressure can be obtained, since the fluid head of the oil in the well plus the casinghead pressure gives the pressure at the bottom of the hole.

On those wells from which a large increase in gas production is noted, the fluid content of the several members of the producing zone could be better determined by running a packer on tubing and setting the packer in successive steps below the top of the perforations. This will be successful in those fields where the plastic character of the shale has resulted in the shale's closing in against the perforated casing, thus preventing vertical movements of oil outside of the casing. From what little data are available at the present time, it is anticipated that the larger portion of the gas, with small volumes of oil, will be found to be coming from the upper portion of the zone, while the lower portion of the hole will be yielding the greater volume of oil, with its own gas-oil ratio.

Preventing Undue Migration of Gas

Due to the partially depleted oil sands and their considerable lateral extent in the average California field, it appears that gas is very liable to migrate from

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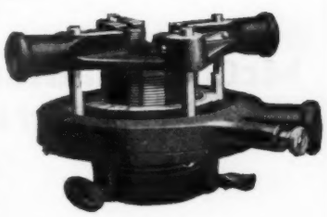

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DETROIT

a shut-in area to wells nearby that are continued on production, as shown in certain instances by the several curves herein discussed. Any remedial work undertaken should be planned to prevent the migration of the gas from one zone to another, and also to prevent the gas by-passing the oil.

By producing a well through tubing with a packer set below the top of the perforations the fluid coming into the hole could be limited to that in the lower portion of the hole. In order to determine the proper place to set the packer, careful oil, gas and gasoline data should be available for the individual well. Lowering the packer a short distance at a time below the top of the perforations and noting the casinghead pressure and the daily production volumes of oil, gas and gasoline would very quickly indicate that the portion of the oil zone containing a large amount of gas and little oil is at the upper portion of the perforations, where it may be closed off behind the packer, or better, above the packer. In this way the pressure of the excess gas in the upper portions of the zone, under shut-in conditions, would be kept off the oil sands, and would not prevent the oil from coming into the hole. Also, the oil produced would have its own gas-oil ratio and could be produced much more efficiently. The writer fully realizes the dangers of setting a packer below the top of the perforations in certain California fields, where dangers of sanding up are considerable. The use of a packer as just described would depend upon individual conditions.

Another Method

Another method of preventing undue migration of gas would be to fill the shut-in well with mud fluid to a sufficient height to offset the normal reservoir pressure, thus preventing vertical migration of the gas from one stratum to another through the well. Of course, if the sands are so depleted that the use of mud fluid would permanently kill the well, this method could not be used, but if the reservoir pressure is at all substantial, it is anticipated that the well could be cleaned out and returned to production without any deleterious effects due to use of mud. Whereas this method would prevent vertical migration through the well itself, it would not prevent horizontal migrations of excess gas in the upper portions of the zone.

A third method that perhaps would prove feasible would be to produce the well through tubing with packer set below the zone of large gas production, and to close in the casinghead. By noting the building up of the casinghead pressure a reliable estimate might be made of the normal reservoir pressure, considering, of course, that any rise in fluid level above the packer in the annular space between tubing and casing would affect the determination of the true reservoir pressure. Then by injecting relatively small quantities of gas into the casinghead the normal reservoir pressure could be maintained and the gas held in solution in the oil in the upper portion of the zone. The amount so injected would be sufficient to offset the normal reservoir pressure, and would tend to prevent the by-passing of the gas that ordinarily would reach the producing well and be classed as excess gas.

The use of back pressures to decrease the gas production and also to maintain an efficient gas-oil ratio is very well understood and need not be discussed here. Under the conditions obtaining in the wells previously discussed the increasing of the back pressure would serve to decrease the volume of excess gas coming into the hole, but it would also place an abnormal back pressure on the zone which yields the major portion of the oil, probably resulting in a great decrease in oil production, but with little increase in the efficiency of the gas produced.

Necessity for Future Study

While it is a relatively simple matter to curtail overproduction of oil in fields in their flush period by merely holding high back pressures, etc., it is quite another matter in fields past the flush stage to shut in producing wells and continue offset wells on production, due mainly to the difficulty in preventing migration of gas from one stratum to another and from one well to another. The great decrease in production when shut-in wells are opened up, in some cases considerably below the normal expected decline, may be traced directly to the production of excess gas from adjoining wells and leases during the period of shutdown.

There is a very vital need for more accurate data for the individual wells on the production of oil, gas and gasoline, and also of the casinghead and tubing pressures. The subsurface conditions in the average field may be very well understood from a general viewpoint, but since each well is an individual problem, more accurate data are needed on the character of the formations passed through, especially in the oil zone itself. The use of the core barrel for every foot of the distance drilled through the producing horizon would lead to accurate correlations between wells, and perhaps would indicate the course taken by the oil and gas in their movements between the wells. The careful testing of the fluid content of portions of the oil zone should lead to a better understanding of the production characteristics of each individual stratum penetrated by the well.

More Tests Desirable

While the writer has suggested several methods to prevent undue migration of gas, these methods have not been tested sufficiently to guarantee results. The development or invention of a packer that could be set below the top of the perforations without sticking the packer or ruining the hole would be of great benefit to the industry.

In the event of curtailment of production in partly depleted areas, and in view of what has occurred on certain leases offset by shut-in wells, it would be well to consider a repressuring program by use of certain of the shut-in wells, which perhaps could lead to a smaller number of wells being continued on production. In this way the ultimate recovery of oil from a field should not be endangered by the production of excess gas from producing wells offset by shut-in wells. The increased production obtained by repressuring could be obtained from fewer wells, although the total monthly production of oil from the field or lease as a whole would be materially decreased. It appears from studies at the present time that the damage to the producing measures is caused by the wells that are continued on production; hence any method that yields the desired volume of oil each day, but results in a smaller number of wells being on production, should minimize the damage to ultimate recovery of oil due to the migration of gas through the partly drained oil measures.

Conclusions

1. Subsurface conditions in the average California oil field that is partly depleted of its oil and gas content, i.e., past the flush stage of production, show that the upper portion of the zone contains mainly wet gas, while the oil is found in the lower portions of the measures.

2. If wells in the flush stage of production are shut in, the offsetting producing wells will have a larger drainage area. The production will vary according the size of this area, the volume increasing somewhat, the gas-oil ratios remaining the same or even decreasing.

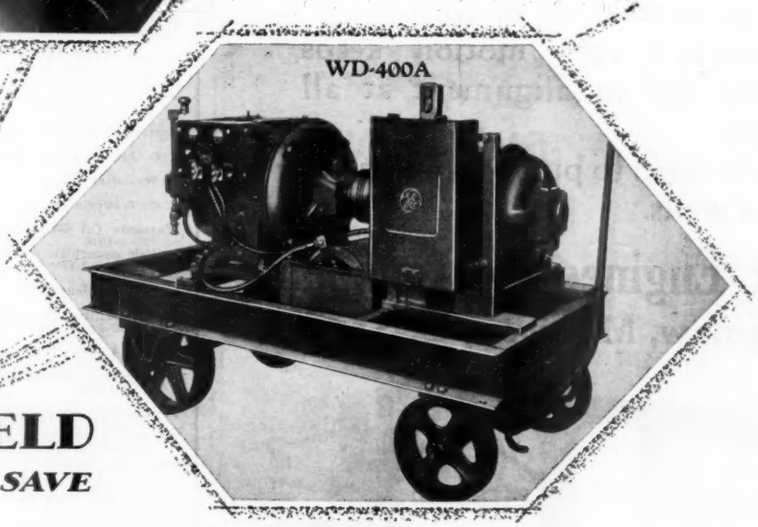
3. In areas where the wells are in the pumping stage and where the fluid level is low, i.e., below the top of the perforations, the gas production still being of considerable amount, shutting in of wells results for the adjoining wells in an increase in oil production, a great increase in gas and gasoline production, and the increase in gas-oil ratios to the maximum of inefficiency.

4. In areas where gravity is the principal force in bringing oil to the well little change is noted by shutting in wells.

5. The great increase in gas production in areas discussed under Group 2 is due to the gas migrating from strata surrounding the shut-in well and traveling to the producing well, by-passing the oil on the way, and bringing little additional oil to the hole.

6. The net result of producing ex-

3 remarkable machines for hand welding



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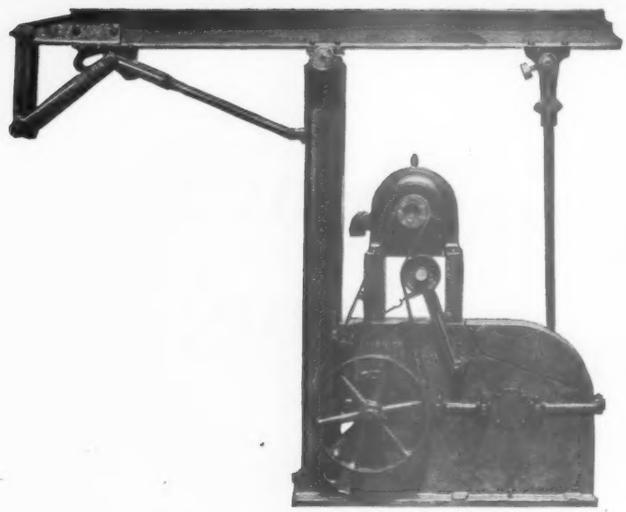
cess quantities of gas under these conditions is to curtail seriously the ultimate recovery of oil from the shut-in wells, and also from the field.

7. Accurate daily determinations of oil, gas and gasoline production from individual wells will very quickly show any sudden increase in gas production, under these conditions, indicating the necessity for immediate remedial action.

8. The use of mud fluid in the shut-in well would tend to prevent vertical migration of the gas from one stratum to another through the medium of the connecting passage established by a well. Producing a well through tubing with packer set below the top of the perforations would tend to prevent horizontal migration of the oil, since the pres could be maintained on the upper tion of the zone.

9. In some cases the maintenanc sufficient back pressure on the pro ing well would tend to prevent the duction of excess quantities of gas, though it would probably put an normal back pressure on the oil in the lower portion of the hole.

10. When it is necessary to cu production by shutting in wells, pressuring program should be consid planned to prevent undue migration the gas and to increase the future covery of oil from the shut-in wells they are again put on production.



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Can be used to pump from one to three wells.

Stork Engineering Company

Saginaw, Michigan, U. S. A.

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 44)

HARPER COUNTY

Amerada Pet. Corp.'s No. 1 Mendiville, C E SE Sec. 24-34-6w ..... Cleaning out 5,353 ft.

HARVEY COUNTY

R. S. Austin's No. 1 Nieman, SW cor. SW Sec. 21-24-2... Drlg. 3,065 ft.
R. F. Garland's No. 1 Cox, NE cor. NE Sec. 27-24-1w... Drlg. 2,595 ft.
Empire G. & F. Co.'s No. 1 Tangeman, SW cor. NE NE Sec. 19-22-1e ..... Drlg. 950 ft.
Mrs. Gay et al's No. 1 Greve, C NW NE NW Sec. 29-23-1w ..... Drlg. 1,040 ft.
Hartman & Skaer's No. 1 Seamen, NW cor. NE SE Sec. 26-24-1e ..... Rig.
Helmerich & Payne's No. 1 Lindamond, C SW NE SW Sec. 2-22-1e ..... Drlg. 750 ft.
Fisher & Louck et als' No. 1 Reiger, NW cor. NE Sec. 17-23-2 ..... Drlg. 1,920 ft.

JEFFERSON COUNTY

Wichlet Oil Co.'s No. 1 Simpson, NW cor. SW SW Sec. 19-10-17 ..... Rigged up and shut down.

JACKSON COUNTY

Garvin & Morton's No. 1 Lutes, SW cor. NW NW Sec. 27-7-15 ..... Shut down 940 ft.

LANE COUNTY

Blankenship Pet. Co.'s No. 1 Schaeffer, NE cor. NE Sec. 24-16-28w ..... Spudded and shut down.

MARSHALL COUNTY

Irwin et al's No. 1 Cooper, NE cor. NW Sec. 10-3-7..... Shut down 600 ft.

MARION COUNTY

Empire Oil & Ref. Co.'s No. 1 Burhart, SE cor. NE NE Sec. 11-20-3 ..... Shut down 2,400 ft.
Empire G. & F. Co.'s No. 1 Blankley, NW cor. NE SW Sec. 30-20-4 ..... Drlg. 2,150 ft.
J. E. Hauna's No. 1 Pankratz, NE cor. NE SW Sec. 13-20-3 ..... Rig.
A. E. Meyers' No. 1 Papp, SW cor. SW NE Sec. 10-18-2.. Drlg. 765 ft.

MEADE COUNTY

Blackwell O. & G. Co.'s No. 1 Beyer, SE cor. NW SE Sec. 9-33-28w ..... 500,000 ft. gas and 3 bails water; total depth 4,356 ft.

McPHERSON COUNTY

Ted Washabaugh's No. 1 Vosshell, NE cor. NE Sec. 9-21-3w ..... Underreaming 2,585 ft.
Lariaux et al's No. 1 Martinson, NE cor. Sec. 9-19-3w... Rig.
McPherson Gas Co.'s No. 1 Stein, SW cor. NE SW Sec. 17-18-1w ..... Drlg. 3,460 ft.
McPherson Gas Co.'s No. 1 Gustafson, C NE Sec. 9-17-2w ..... Shut down 3,597 ft.
W. C. Newman's No. 1 Diepenbrock, NW cor. NE Sec. 2-17-1w ..... Dry and abd. 3,534 ft.
McPherson Gas Co.'s No. 1 Wedell, C SW Sec. 12-20-2w ..... 5,000,000 ft. gas 2,983 ft; S.D. 991 ft.
Vickers Pet. Co.'s No. 1 Wedell, C SW Sec. 12-20-2w.... Rig.
Mid-Kansas Oil & Gas Co.'s No. 1 Yoder, C NW SW Sec. 8-20-4w ..... Drlg. 2,650 ft.
Marland Prod. Co.'s No. 1 Wilkering, C SW SW Sec. 9-21-1w ..... Drlg. 1,920 ft.

NESS COUNTY

Barnsdall Oil Co.'s No. 1 Lauk, C SW Sec. 35-18-21w.... Casing 600 ft.

OSBORNE COUNTY

L. D. Jarvis' No. 1 Jellison, SE cor. SE Sec. 13-10-15w... Spudded and shut down.

OTTAWA COUNTY

Anderson et al's No. 1 Bank, NE cor. NW Sec. 28-10-2w.. Shut down 2,820 ft.

PAWNEE COUNTY

F. C. Troupe's No. 1 Lovett, CEL NE NE Sec. 31-21-16w. Shut down 1,560 ft.

PHILLIPS COUNTY

Watsonia Oil Co.'s No. 1 Marklein, NE cor. SW Sec. 21-3-19w ..... Shut down 3,015 ft.
British American Oil Co.'s No. 1 Weinman, C SW SW Sec. 34-2-19w ..... Rig.

PRATT COUNTY

O'Haver & Jones' No. 1 Lunt, CSW NW Sec. 15-28-14w.. Spudded and S.D.

RENO COUNTY

Austin Drilling Co.'s No. 1 Strickley, SW cor. NW Sec. 17-25-5w ..... Rig.

RICE COUNTY

Allison & Fitzwilliams' No. 1 Poland, NE cor. SW NE Sec. 36-19-8w ..... Cellar.
Higgins & Stembubble's No. 1 Shurr, NE cor. SW Sec. 21-20-10w ..... Show gas 1,410 ft; S.D.

ROOKS COUNTY

Prairie Oil & Gas Co.'s No. 1 Sandberg, C SW Sec. 20-9-18w ..... Drlg. 1,430 ft.
Burford & Brimm's No. 1 Toxa, NE cor. SW SE Sec. 22-19-17w ..... Spudded and shut down.
Skelly and Midwest's No. 1 Jones, SW cor. NE NW Sec. 28-7-16w ..... Shut down 3,485 ft.

RUSH COUNTY

Phillips Pet. Co.'s No. 1 Legleiter, NE cor. NW SE Sec. 10-16-18w ..... Drlg. 930 ft.
Sinclair Oil & Gas Co.'s No. 1 Berching, NW cor. NE NW Sec. 9-16-16w ..... Fishing 3,474 ft.
Danciger Oil & Ref. Co.'s No. 1 Poland, NE cor. SW NE Sec. 17-19-17w ..... Shut down 530 ft.

RUSSELL COUNTY

Joe Liggett's No. 1 Maier, SE cor. NE SE Sec. 8-11-15w.. Top Oswald 3,016 ft.; show oil and water; drlg. 3,280 ft.

SALINE COUNTY

M. Estey et al's No. 1 Peterson, C NE Sec. 6-16-5w ..... Spudded and shut down.
Boyle et al's No. 1 Miller, SW cor. SE Sec. 21-16-1w..... Shut down 2,615 ft.
Nathan Jones et al's No. 1 Robertson, NW cor. SW Sec. 27-14-2w ..... Underreaming 2,847 ft.

SEDGWICK COUNTY

Bu-Vi-Bar et al's No. 1 Roberts, SE cor. SW Sec. 1-26-2w ..... Rig.
Barnsdall Oil Co.'s No. 1 Means, NW cor. SW Sec. 34-27-2 ..... Dry and abd. 3,429 ft.
Lewis et al's No. 1 Taylor, NW cor. NE Sec. 23-27-2..... Drlg. 1,650 ft.
J. H. Tatlock et al's No. 1 Goelder, NW cor. NE Sec. 6-29-2e ..... Drlg. 2,790 ft.
Kyser et als' No. 1 Stroot, SW cor. NW Sec. 8-26-2w.... Drlg. 2,500 ft.
Lario & Blair's No. 1 Tjaden, C NE SE Sec. 22-29-2w... Shut down 2,245 ft.
Magiason et al's No. 1 Buckles, NW cor. SE Sec. 3-28-1w. Shut down 250 ft.
R. Magiason et als' No. 1 Buckles, NW cor. SE Sec. 3-28-1w ..... S.D. 250 ft.
Magnolia Pet. Co.'s No. 1 Wise NW cor. NW Sec. 36-28-2w ..... Drlg. 750 ft.

McCulloch Oil Co.'s No. 1 John, C NE SW NE Sec. 24-29-1e ..... Drlg. 2,700 ft.
Morgan & Tilley's No. 1 Fitzgerald, NW cor. NE Sec. 5-26-1w ..... Spudded.
Barnsdall Oil Co.'s No. 1 Faber, SW cor. NW Sec. 6-27-1w ..... Casing 3,380 ft.
Mo.-Vi-Bar Pet. Co.'s No. 1 Steel, SE cor. SE Sec. 1-26-2w Drlg. 3,368 ft.
Connell & Slick's No. 1 Cross, NE cor. NE Sec. 27-25-1w Drlg. 3,200 ft.
VanZant & Mason's No. 1 Fox, C NW SW Sec. 19-25-1w Drlg. 3,415 ft.
Miller & Wentz's No. 1 Shaffer, NW cor. NE Sec. 9-27-3w ..... Rig.
Morgan et als' No. 1 Corn, SW cor. NE, Sec. 28-26-1w Drlg. 2,638 ft.
R. B. Shawver et als' No. 1 Reeves, SE cor. SW SE Sec. 19-28-1e ..... Drlg. 1,950 ft.
Shell Pet. Corp.'s No. 1 Lygrisse, SE cor. NE Sec. 15-26-2e ..... Drlg. 1,675 ft.
Washabaugh et als' No. 1 Lowery, NW cor. NE NE Sec. 3-26-2w ..... Rig.

SHERMAN COUNTY

A. L. Henson et al's No. 1 Murry, NE cor. SE NW Sec. 22-7-40w ..... Shut down 3,035 ft.

STEVENS COUNTY

Texas Oil Co.'s No. 1 Thompson, C NE SW Sec. 3-35-38w Drlg. 430 ft.
W. Sidwell et al's No. 1 Kelly, SW cor. NE Sec. 16-34-38w ..... Drlg. 1,557 ft.
McKenna et al's No. 1 Haun, SE cor. NE Sec. 10-33-38w. Underreaming 2,000 ft.

SMITH COUNTY

Mid-Kansas Oil & Gas Co.'s No. 1 Unknown, NE cor. NE Sec. 4-2-13w ..... Rig.

SUMNER COUNTY

McCulloch Oil Co.'s No. 1 Teetle, SW cor. NE Sec. 29-34-1w ..... S.D. 4,632 ft.
Gypsy Oil Co.'s No. 1 Williams, NW SE SW Sec. 16-35-3w ..... Fishing 4,400 ft.
Helmerich & Payne's No. 1 Warlick, SE cor. NE Sec. 1-34-2 ..... Dry and abandoned 3,854 ft.
Otstot et al's No. 1 Barlow, SE cor. SE Sec. 22-33-3w. Plugging back to 4,150 ft.
Davidson and others' No. 1 Strickland, SW cor. SE Sec. 12-35-1w ..... Rig.

TREGO COUNTY

Central Commercial Oil Co.'s No. 1 Ellis, NE cor. SW NE Sec. 20-13-21w ..... Shut down 3,200 ft.

WASHINGTON COUNTY

McCool & Vincent's No. 1 Linn, NW cor. NE Sec. 27-4-3 .. Rig.

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 42)

McLAIN COUNTY

Empire Oil & Ref. Co.'s No. 1 Bonner, SE cor. NW NW Sec. 29-5-3 ..... Dry and abd. 4,800 ft.

MUSKOGEE COUNTY

Elk Drilling Co.'s No. 1 Jones, SW cor. SW Sec. 34-15-17 ..... Shut down 400 ft.
A. T. Haney's No. 1 Mitchell, SE cor. NW SE Sec. 33-13-18 ..... Drlg. 2,335 ft.
J. L. Slusher's No. 1 Nave, NE cor. SW NW Sec. 20-15-20 ..... Shut down 775 ft.
Colton & Lester's No. 1 Ellington, SW cor. NW SW Sec. 25-12-19 ..... Location.
Colton & Lester's No. 1 Parker, C NW SW Sec. 31-12-19. Drlg. 416 ft.

HUGHES COUNTY

K. W. Whitney and others' No. 1 Moore, SE cor. SW Sec. 17-5-9 ..... Shut down 3,345 ft.
Pure Oil Co.'s No. 1 Fixico, NE cor. SW Sec. 18-8-9 ... Dry and abandoned 4,500 ft.
Seward Petroleum Co.'s No. 1 Gilbert, NW cor. SE Sec. 25-8-10 ..... Drlg. 4,662 ft.
Gypsy Oil Co.'s No. 1 McGirt, NE cor. NW SW Sec. 21-6-8 ..... Sand 3,310-30 ft.; corrected, hole full water.

CANADIAN COUNTY

Virt Franklin Pet. Co.'s No. 1 North, NW cor. NW Sec. 18-13-10w ..... Drlg. 5,524 ft.

OKLAHOMA COUNTY

Slick & Bailey's No. 1 Koester, C SE NE Sec. 18-13-3w .. Drlg. 5,016 ft.
Cromwell & Franklin's No. 1 Thompson, SW cor. NE NE Sec. 15-12-3w ..... Drlg. 7,132 ft.
Indian Terr. Ill. Oil Co.'s No. 1 fee, C SE SE Sec. 24-11-3w ..... Flowing 5,697 bbls. daily from 6,498 ft.
Hall & Briscoe's No. 1 Holmes, NE cor. SW SE, Sec. 10-11-3w ..... Drlg. 3,150 ft.

OKFUSKEE COUNTY

Moore & Daniels' No. 1 Stidham, SW cor. NW Sec. 4-11-10 ..... Shut down 622 ft.
T. B. Slick, Inc.'s No. 1 Barry, SE cor. NE SE Sec. 31-11-7 ..... Drlg. 4,116 ft.
Irwin and others' No. 1 Patterson, NW cor. SE Sec. 15-13-9 ..... Location.
Irwin et als' No. 1 Patterson, NW cor. SE Sec. 15-13-9 Location.
Prairie O. & G. Co.'s No. 1 Palmer, NW cor. NW NE Sec. 2-11-9 ..... Rig.

SEQUOYAH COUNTY

Cooper & Badger's No. 1 Young, NW cor. NE NE Sec. 7-13-26 ..... Shut down.
Hunt and others' No. 1 Unknown, SE cor. NW SW Sec. 12-13-22 ..... Drlg. 1,016 ft.
Buffington et al's No. 1 Melcher, C SW NW Sec. 31-12-24 ..... Drlg. 2,320 ft.

PAWNEE COUNTY

Washoma Oil Co. and others' No. 1 Buffalo, SE cor. NE Sec. 33-22-5 ..... S.D. 3,200 ft.

POTTAWATOMIE COUNTY

Shell Pet. Corp.'s No. 1 Livingston, SW cor. SE Sec. 33-7-5 ..... Swb. 25 bbls. oil and some wtr 4,573 ft.
Superior Oil Co.'s No. 1 Herminghausen, SW cor. NW NE Sec. 24-8-2 ..... Drlg. 5,356 ft.
Pure Oil Co.'s No. 1 Lindley, SE cor. SW SE Sec. 18-8-5 Hunton 4,124-40 ft.; flowing 1,604 bbls.
T. B. Slick's No. 1 Sailor, SE cor. NW NW Sec. 12-8-3... Drlg. 4,560 ft.
T. B. Slick and Shell Pet. Corp.'s No. 1 Hurst, SE cor. NW NW Sec. 17-7-2 ..... Preparing to plug 6,098 ft.
Shell Pet. Corp.'s No. 1 Wyatt, SW cor. NW NE Sec. 17-6-5 ..... Dry and abandoned 4,414 ft.
Mid-Continent Petroleum Corp.'s No. 1 James, SE cor. SE Sec. 22-5-3 ..... Rig.
Nash & Vaughan's No. 1 Laster, SE cor. NE NE Sec. 19-4-4 ..... Rig.

CADDO COUNTY

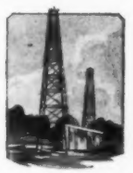
J. B. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w... Shut down 150 ft.
W. J. Hartley's No. 1 Galbreath, SE cor. NW SE Sec. 29-5-12w ..... Shut down 3,394 ft.
English Drilling Co.'s No. 2 Pruitt, CNL NW SE Sec. 13-6-10w ..... Rigged up and shut down.

STEPHENS COUNTY

Kuhl & Burris' No. 1 Jefferson, SE cor. NE NW Sec. 1-1-7w ..... Shut down 2,624 ft.
Prince Bros.' No. 1 Hidgecoxie, NW cor. NE Sec. 29-2-6w ..... Rigging rotary.

SEMINOLE COUNTY

Magnolia Pet. Co.'s No. 1 Germany, SE cor. NW Sec. 10-9-5 ..... Plugging back to Hunton lime.
Phillips Pet. Co.'s No. 1 Miller, NW cor. SW Sec. 34-11-7 ..... Drlg. 3,925 ft.
Burke-Grele Oil Co.'s No. 1 Cyrus, SE cor. NE NW Sec. 13-9-7 ..... C.O. 3,420 ft.
K. W. Whitney's No. 1 Harjo, NE cor. NW NE Sec. 25-7-6 ..... Plugged back 4,325 ft. and shut down.
Gypsy Oil Co.'s No. 1 Andrews, NE SE NW Sec. 27-10-7 ..... Drlg. 3,890 ft.
Shaffer Oil & Ref. Co.'s No. 1 Catchochee, SW cor. SW NE Sec. 18-10-7 ..... Dry and abandoned 3,782 ft.
T. W. Adkins' No. 1 Reed, NE cor. NW Sec. 2-8-8..... Dry and abd. 4,370 ft.
T. B. Slick, Inc.'s No. 1 Tiger, NW cor. SW SE Sec. 13-8-5 ..... Dry and abandoned.



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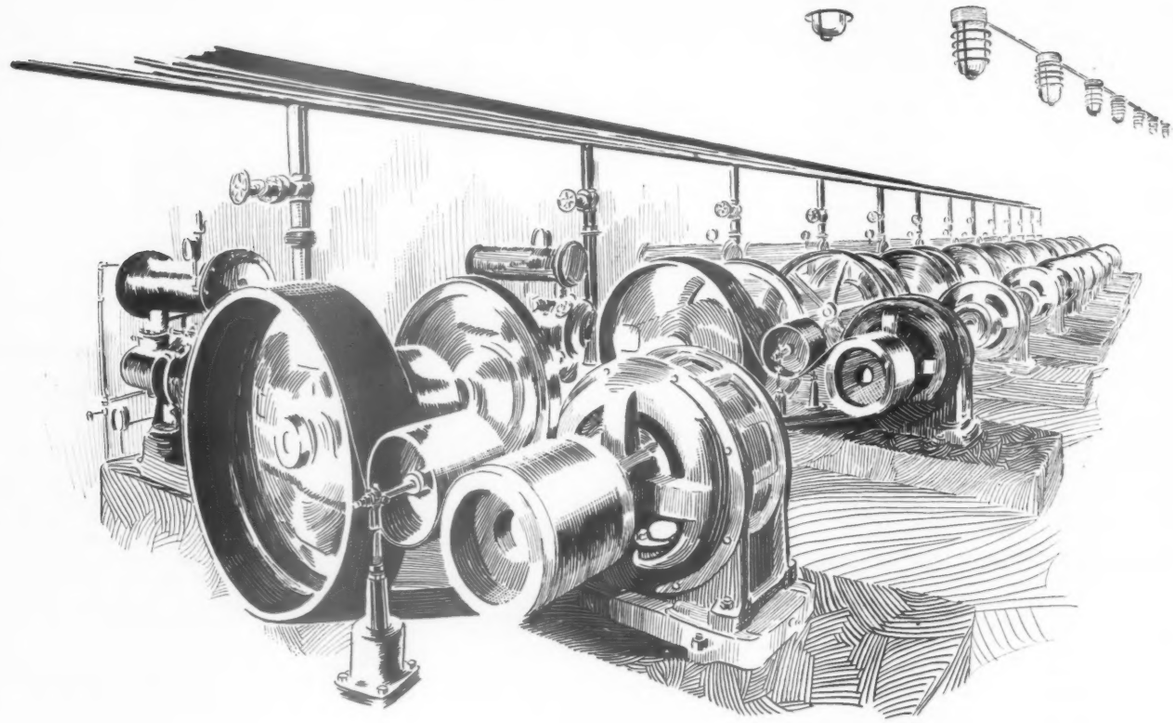

THIS is the first of a series of advertisements in 1929 telling the story of ELECTRIC POWER to the petroleum industry. These messages will discuss ELECTRIC POWER generally and its specific use in drilling, water pumping, air lift, refineries and pipe line stations.

Ten years ago electricity was not taken seriously as a power medium by the petroleum industry. Today, practically all of the important companies have ELECTRIC POWER installations. One by one they have learned that electricity has proved its case as an efficient, money-saving power medium.

OKLAHOMA GAS AND

J. F. Owens, Vice Pres. and General Manager

McCulloch Oil Co.'s No. 1 McGilbray, SW cor. SW NE Sec. 4-8-3	U.R. 1,940 ft.
McCulloch Oil Co.'s No. 1 Powell, NW cor. NW, Sec. 11-4-5	Location.
Empire Gas & Fuel Co.'s No. 1 Harjo, SW cor. NW SE Sec. 17-7-6	Hole full water, Wilcox 4,593-4,600 ft.
Briand Oil Co.'s No. 1 Strothers, NW cor. SE NE Sec. 5-10-7	Drlg. 3,840 ft.
Magnolia Pet. Co.'s No. 1 Carroll, SW cor. NW SE Sec. 1-7-5	Dry and abd. 4,820 ft.
Magnolia Pet. Co.'s No. 1 Harjo, NE cor. SE Sec. 34-6-7	Location.
B. Slick and others' No. 1 Davis, NE cor. NE Sec. 16-4-6	Drlg. 3,520 ft.

TILLMAN COUNTY

Ohio & Treadwell's No. 1 Howell, NW cor. SE Sec. 11-1-17w	Shut down 625 ft.

MAJOR COUNTY

Sinclair & Mooney's No. 1 Parker, SE cor. NE NW Sec. 4-23-16w	Show oil 1,235 ft.; shut down
Carl and others' No. 1 Turner, C NE NE Sec. 23-20-14w	Rig.
Wilson et al's No. 1 Unknown, NE cor. NE Sec. 4-23-16w	Cellar.

WOODS COUNTY

J. K. Miller's No. 1 Copenhavera, NW cor. NW Sec. 18-24-13w	Moving in tools.
Gypsy-Prairie and others' No. 1 Thompson, SE cor. SW Sec. 10-25-15w	Drlg. 3,800 ft.
Sinclair Oil & Gas Co.'s No. 1 Thompson, C SW SW Sec. 21-27-16w	Rig and tools.

MURRAY COUNTY

Ohio Oil Co.'s No. 1 Labor, NW cor. NW Sec. 17-1-2	Shut down for casing 1,900 ft.
Ramsey Bros.' No. 1-A Malock, C SW NE Sec. 32-1-3	Drlg. 545 ft.

DEWEY COUNTY

Buckaby & McCoy's No. 1 Perfect, NE cor. NE Sec. 9-18-15w	Shut down 4,355 ft.
Wm. Sifers' No. 1 Jordan, SW cor. NW Sec. 16-16-17w	Spudded and shut down.

BECKHAM COUNTY

A. & H. Petroleum Co.'s No. 1 Barnes, SW cor. NW NE Sec. 32-9-22w	Shut down 3,460 ft.
Martin and others' No. 1 Cluck, NW cor. SE Sec. 1-8-25w	Shut down 3,000 ft.
J. C. Hivicks' No. 1 Davis, C NW NE Sec. 4-11-26w	Shut down 725 ft.
Producers Exploration Co.'s No. 1 Seidell, SE cor. SW SW Sec. 17-8-22w	Shut down 2,402 ft.
Larson and others' No. 1 Danby, SW cor. SE NE Sec. 28-8-22w	U.R. 885 ft.
Penfel and others' No. 1-A Carter, NE cor. NE Sec. 15-9-22w	Shut down 1,500 ft.
Ray Oil Co.'s No. 1 Ault, NW cor. NW Sec. 33-8-21w	Shut down 1,515 ft; corrected.

GRADY COUNTY

Remington and others' No. 1 Fryrear, SW SW NE Sec. 13-9-5w	Shut down 720 ft.
V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w	Spudded and shut down.
M. Henry and others' No. 1 Abraham, SE cor. NW Sec. 4-5-8w	Rig.
B. Nichols' No. 1 Brake, SE cor. NE SE Sec. 7-5-7w	Shut down 2,307 ft.

McINTOSH COUNTY

Marione and others' No. 1 Smith, SW cor. NW SE Sec. 32-9-16	Shut down 2,387 ft.; corrected.
Patterson and others' No. 1 Smith, SW cor. NW SE Sec. 32-9-16	Shut down 5,451 ft.
Wolfe and others' No. 1 Unknown, NW cor. SE Sec. 15-12-18	Rig on ground.
Wolfe et als' No. 1 Unknown, NW cor. SE Sec. 15-12-18	Rig on ground.

CLEVELAND COUNTY

Daniels & LeWright's No. 1 Vandever, C SW Sec. 15-7-1w	Shut dow 3,130 ft.
Phillips Pet. and T. B. Slick's No. 1 Hentleman, NE cor. NE Sec. 8-10-2w	Drlg. 4,895 ft.

KIOWA COUNTY

Blue Mountain Oil Co.'s No. 1 Jones, SE cor. NW NW Sec. 17-5-14w	Shut down 530 ft.
J. B. Cloyes' No. 1 Brazill, SW cor. NE Sec. 34-7-17w	Shut down 950 ft.
Dave Malernee's No. 1 Van Kirk, NW cor. NW Sec. 35-7-15w	Shut down 858 ft. in granite.
A. C. Varner and others' No. 1 Bonham, CSL NW NW Sec. 5-6-18w	Shut down 1,127 ft.

CUSTER COUNTY

W. E. Witt's No. 1 Wellman, C SE Sec. 1-14-14w	Rig and tools.

PONTOTOC COUNTY

Moore & Curran's No. 1 Allen, SE cor. SW SW Sec. 23-5-5	Shut down 1,460 ft.
Denver P. & R. Co.'s No. 1 Roberts, SE cor. NE NE Sec. 36-5-4	Drlg. 1,260 ft.

COMANCHE COUNTY

Owen and others' No. 1 Wilson, C NE SW Sec. 14-1-12w	Shut down 4,055 ft.
Fort Franklin Pet. Co.'s No. 2 Holler, NW cor. NW Sec. 2-4-11w	Drlg. 3,391 ft; corrected.
Wright et als' No. 1 Cross, NW cor. SW SW Sec. 4-1-9w	Rig.

COAL COUNTY

Indian Territory Illuminating Oil Co.'s No. 1 Cook, SW cor. NW Sec. 10-1-11	Drlg. 6,205 ft.
Robert Galbreath and others' No. 1 Jones, SW cor. SE Sec. 24-1-9	Shut down 3,270 ft.
J. S. Cowden's No. 1 Richardson, NW cor. NE NE Sec. 6-2-8	Rig.

PITTSBURG COUNTY

Kerr & Koy's No. 1 Hall, C NW NW Sec. 32-4-12	Spudded.

JACKSON COUNTY

Texas Oil Co.'s No. 1 Northington, NE cor. NE Sec. 4-1-20w	Shut down 2,020 ft.

SOUTHERN OKLAHOMA

BRYAN COUNTY

Alexander & Oppenheimer's No. 1 Hampton, SE cor. NE Sec. 26-7s-11	Shut down 1,425 ft.
McNull & Gross' No. 1 Smith, CEL SE NW NE Sec. 11-6s-9e	Shut down 375 ft.

MURRAY COUNTY

Miller and others' No. 1 Johnson, SW cor. NW Sec. 14-4-7	Spudded and shut down.

COTTON COUNTY

Tyler & Pyson's No. 1 Thomas, SE cor. SE SW Sec. 16-4-12w	Shut down 2,127 ft.
Amerada Pet. Corp.'s No. 1 Dulaney, SE cor. NW NW Sec. 31-4-9w	Location.
Pierce & Brown's No. 1 Hertzler, NW cor. NW Sec. 11-2-12w	Drlg. 1,710 ft.

JEFFERSON COUNTY

Bidwell et al's No. 1 Trout, CEL NE Sec. 33-6s-6w	Drlg. 2,315 ft.
Amerada Pet. Corp.'s No. 1 Emerson, NW cor. SE SW Sec. 28-5s-8w	Shut down 4,516 ft.

CHOCTAW COUNTY

Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW Sec. 15-6-19	Shut down 1,346 ft.

TILLMAN COUNTY

Gray and others' No. 1 Barker, NE cor. SW NW Sec. 8-1-15w	Shut down 805 ft.
Dixie Oil Co.'s No. 1 McKinney, NE cor. NE Sec. 29-1s-18w	Drlg. 2,710 ft.
Stanley & McGregor's No. 1 Mock, NW cor. NW SW Sec. 33-1-20w	Dry and abandoned 2,445 ft.
Landfair and others' No. 1 Smith, SE SW SE Sec. 4-2s-15w	Shut down 2,535 ft.

JOHNSON COUNTY

Wapaucka Oil Co.'s No. 1 Banks, Sec. 28-2s-9	Shut down 1,530 ft.
Bush Creek Oil Co.'s No. 1 Kirby, SE cor. NE NW Sec. 9-4-7	Shut down for casing 405 ft.
Smith & Kinsley's No. 1 Lane, SE cor. NW Sec. 29-1-7	Drlg. 1,720 ft.
Dixie Oil Syndicate's No. 1 Craige, C NW NE Sec. 36-3s-3e	Drlg. 1,043 ft.
Sullivan and others' No. 1 Wines, NW NE NW Sec. 31-7s-5e	Shut down 475 ft.
R. J. Stump and others' No. 1 McGinnis, SW Sec. 26-3s-4w	Rig and tools.
McCrow and others' No. 1 Trust, SW Sec. 12-1s-8e	Shut down 1,625 ft.

CARTER COUNTY

Devonian Oil Co.'s No. 1 Myer, NW cor. SE Sec. 19-5s-3w	Drlg. 2,520 ft.
Avus-Dickey's No. 1 Anderson, NE cor. SE NE SE Sec. 13-4s-2	Drlg. 625 ft.
Schermerhorn Oil Co.'s No. 2 Jolliff, NE NW Sec. 34-4s-1e	Drlg. 2,810 ft.
Humble Oil & Ref. Co.'s No. 1 Hitchcock, SE NE Sec. 12-4s-3e	Drlg. 1,340 ft.

ROCKY MOUNTAIN AREA

(Continued from Page 52)

transmission line is within reach and the Huerfano and Arkansas Rivers are from 3 to 6 miles away, with several lakes and reservoirs in close proximity. The district is 10 to 15 miles from Pueblo and roads are being put in good condition.

Large quantities of material are being moved into the area, a considerable part, including several rigs, being trucked from Florence. In most instances the final spotting of the wells has not been made, but operations reasonably sure to begin by March 1 include the following: Henry Dickason, for his own account, in Section 19-22-63 and for the J. W. Ady interests on the Carr ranch in the SW Section 13-22-63. George Windle, on the Evans farm in Section 6-22-63, and S. V. Windle on the Evans ranch in the NW Section 11-22-63. The Security Oil Trust (Frank Smith) in Section 14-22-63. W. F. McCormick and others are moving in three rigs to be spotted one each in Sections 13 and 16-22-63 and 14-21-63. A Wichita Falls, Tex., firm has leased the Roy Ortnor farm in Section 7-22-63 under a contract to begin drilling by March 1, and George R. Slentz, of Fort Worth, has returned to Texas to ship a rig to be located in Section 21-21-63.

Tow Creek Completed

One completion was reported in Colorado, this being the Hynds Oil Co.'s No. 2 State, NW SW NW Section 17-6n-86, Tow Creek Dome, in Routt County. It was completed in the Mowry shale at 3,310 feet with an initial production of 27 bbls. on the pump. It also was making 8,000,000 feet of gas, but the quantity subsequently decreased by half. This firm, the only operator in the field outside of the Texas Production Co., will wait until the weather is more favorable before undertaking any more development. The Texas Production Co.'s No. 4 Belle Dennis, NE SE Section 7-6n-86, a test to the Sundance, is drilling at 4,120 feet with a hole full of water, probably from one of the sands in the Dakota. It is still some distance above the objective.

On the Iles Dome in Moffat County, the Midwest Refining Co.'s No. 7-M, NW NW Section 23-4n-92, completed in the top of the Morrison at 3,290 feet last fall with an initial production of 100 bbls., is being deepened and is drilling at 3,303 feet in green gray sandy shale. It was started with the Sundance as the objective, but stopped to save the oil in the first Morrison. The same company's No. 24-SD Parkinson, SE NW Section 22-4-92, is standing at 2,940 feet where the 10-inch was cemented. The Texas Production Co.'s No. 36 Lloyd, SE cor. Section 21-4-92, is bottomed at 3,155 feet and underreaming and lowering 8¼-inch pipe. Thomas McLaughlin and others' No. 1 Williams, NW SW Section 2-3n-92, in the fault area south of the Iles Dome, is drilling at 2,930 feet in gray shale. McCormick Oil Co.'s No. 1-A Sales, SE SE Section 82-4-92, spudded and shut down for the winter at 15 feet. On the Moffat Dome the Texas Production Co.'s No. 11 Knowlton, SE cor. Section 33-5n-91, is coring at 4,326 feet and feeling for the Morrison, and its No. 5 Walter Wock, Section 10-4-91, is drilling at 4,389 feet in new hole, total depth of the old hole before plugging back to straighten was 4,596 feet. The Ohio Oil Co.'s No. 1 Reiter-Foster, SE SE Section 16-12n-100, Hiawatha Dome, is drilling at 3,345 feet.

In Larimer County, the Continental Oil Co.'s No. 3 Mitchell, SE NE Section 6-9n-68, Wellington Dome, is drilling at 960 feet, and its No. 2 Elder, SW NE Section 18-9-68, is bottomed at 3,990 feet and underreaming the 6¼-inch at 3,869 feet.

The Uncompahgre Oil & Gas Co.'s No. 1, Section 27-50n-10, Montrose County, is shut down for financing. The Okla-Colo Oil & Gas Co.'s No. 1 Doherty, SE SW Section 32-34-60, Las Animas County, is drilling at 610 feet.

J. A. Bermingham, vice president of the Texas Production Co., has returned to Denver from a three-weeks trip over the Rocky Mountain District in the company of a party of The Texas Company executives from New York who have been inspecting the producing and refining properties. In the party were President and Mrs. R. C. Holmes; Mrs. Donohue, wife of Vice President T. J. Donohue; W. S. Rogers, vice president in charge of sales; Col. H. T. Cline, general counsel; and R. Ogarrio, vice president in charge of production. The trip included part of Canada, where The Texas Company, Ltd., of Canada, is operating.

WYOMING

Salt Creek was credited this week with the best completion since last November in the Wyoming Associated Oil Co.'s No. 3-SD-3, in the NW Section 35-40-79, which made 2,338 bbls. the first 24 hours from the Sundance sand at 2,837-41 feet. Last November, the same company's No. 16-SD, on the same quarter, came in at 2,870 feet, making 3,060 bbls. initial. While the new well did not prove up any new territory, it again emphasizes the importance of the lower horizon in which there are only a few wells. This operation is one of the five Sundance sand wells started last fall. Drilling in the field is still being held down to the minimum requirements. Another completion, but northwest of the field proper, was the Coombs Development Co.'s No. 1, NW SE Section 7-40-79, which was dry and abandoned at 2,000 feet, having failed to find the shale oil for which it was drilling.

Plans are being matured for the operation of the North Baxter Basin and South Baxter Basin gas fields in Sweetwater County as two units in anticipation of putting the field on production to supply natural gas for the line now being constructed between that district and central Utah and southern Idaho. A meeting of operators and land owners was held recently at Parco at which a tentative unit plan for development and production was agreed upon. Representatives of the Union Pacific Railroad, the United States Geological Survey, the State of Wyoming, the Associated Oil Co., the Ohio Oil Co., the Midwest Refining Co., the Producers & Refiners Corp., and the Prairie Oil & Gas Co. were in attendance. The geologists outlined the productive areas as far as can be determined at present and additional outlying areas which may be productive and these were adopted as a basis for discussion. The tentative plans, subject to revision, provide for the operation of the north and south domes as separate areas; unit operation for gas only down to and including the Dakota sands; to eliminate unnecessary drilling so far as possible; and the percentages of the whole credited to the different owners of leases and properties. The United States Government and the State of Wyoming have shown a disposition to co-operate fully in the orderly development of areas in which there are large blocks of public land and it is confidently expected a similar policy will be followed in this instance. Work is progressing steadily on the construction of the line, about 400 men being employed on the division between Salt Lake City and Coalville. Activity on the eastern end will be more pronounced when weather conditions moderate.

Oregon Basin

No new wells are being started in the Oregon Basin Field in Park County and drilling wells show nothing exciting. The Ohio Oil Co.'s No. 1 Sonners, Acct. 3, SE Section 8-51-100, is drilling out cement at 3,785 feet in the top of the Embar which showed some saturation. The Wyoming Western Oil Co.'s No. 3 Hough, SE SE Section 18-51-100, is drilling at 3,918 feet, and the Wisconsin Holding Co.'s No. 2 Rousch, SW SW Section 9-51-100, set the 8¼-inch at 3,050 feet in the top of the red beds. The Akron-Wyoming Oil Co.'s No. 1 Beck, SW cor. Section 28-52-100, the farthest north of any well in the field, is resuming at 1,675 feet after disposing of litigation. The Cody Petroleum Co.'s No. 7 Klindt, Section 7-51-100, is drilling at 2,860 feet and its No. 1 Garner, SW NE Section 27-51-101, is changing over from rotary to cable tools at 2,808 feet. The Big Horn Petroleum Co.'s No. 1 Trumbull, SW NE Section 7-51-100, is drilling at 3,885 feet. Among the wildcats in Park County outside of Oregon Basin, the Producers &

Refiners Corp.'s No. 1, SE NW Section 7-57-97, on the Sage Creek Dome, is drilling at 1,780 feet in gray shale. At 1,700 feet it was in sand showing a little saturation. The Oregon-Wyoming Oil & Gas Co.'s No. 1, NE SW Section 30-52-101, Horse Center, set the 6⅝-inch at 1,030 feet to shut off water, and the Cody Petroleum Co.'s No. 1 Nelson, SE NE Section 4-51-102, Diamond Basin, is drilling at 2,390 feet. The Resolute Oil Co.'s No. 1, SW NE Section 17-57-101, Badger Basin, has suspended for the winter at around 2,000 feet. The Midwest Refining Co.'s No. 1 Kirk, SE cor. Section 23-58-98, Frannie Dome, is drilling at 1,385 feet in gray shale, and its No. 36 Rosenburg, SE NW Section 25-58-98, is drilling at 560 feet in gray slate. The Ohio Oil Co.'s No. 1 Pulley, Section 27-53-101, Shoshone Dome, is still trying for a water shutoff in the lower Embar to make a producer from the upper measures.

Hot Springs County

In Hot Springs County, McPherson and others' No. 1, Section 2-44-96, Little Sand Draw, is drilling at 3,500 feet in broken shale, and the Texas Production Co.'s No. 1, NW SW, Section 23-45-100, Skelton Dome, is drilling at 1,214 feet.

In Big Horn County, J. E. Scanlon's No. 1, Section 19-51-92, a deep test in the old Torchlight Field, topped the red beds at 2,555 feet and set the 6¼-inch at 2,600 feet to shut off water. The Prairie Oil & Gas Co.'s No. 1 Chilcote, Section 35-56-95, Little Sheep Mountain, is shut down on account of weather at 2,580 feet.

In Johnson County, north of Salt Creek, the Carter Oil Co.'s No. 1 State, SW cor., Section 16-48-82, Billy Creek Dome, is preparing to set casing at 3,212 feet on top of a sand showing some gas and heavy saturation. This well is half a mile east of the nearest gas well, and it may encounter oil.

The Midwest Refining Co.'s No. 1, Section 35-22-115, on the Waterfall Dome in Lincoln County, is drilling at 2,440 feet in brown hard sand with 2,400 feet of water in the hole.

In Sublet County, the Great American Oil Co.'s No. 1, NE NE, Section 35-30-115, Snyder Basin, a diamond drill test, has set the 3-inch at 750 feet. The California Co.'s No. 1 Wyss, NE SW, Section 12-32-115, South Cottonwood, is drilling at 1,364 feet in hard gray sand, and its No. 1 Bushell, SW SE, Section 11-29-115, Snyder Basin, is shut down at 2,505 feet. Same company's No. 1 Union Pacific, Section 7-17-116, Muddy Creek Dome, Uinta County, is drilling at 2,729 feet in pink sand. The Ohio Oil Co.'s No. 1 Humphreys, Section 2-12-101, Canon Creek Dome, in Sweetwater County, is drilling at 2,240 feet.

MONTANA

Most of the roads in Sunburst are still closed with snowdrifts, but a chinook is blowing and better weather is now expected. All operations are at a standstill except pumping, but as soon as the weather warms up a little the tools are to start drilling on the new wells. Several wells require only a few days more work to reach the sands.

In the Pondera Field, two new completions were made. Ponting & Rice completed Nos. 2 and 4 on the Copley lease, Section 15-27-4, and both will make producers, but have not been tested. The production of Pondera held up well in spite of the cold. No trouble has been encountered in pipe line shipments to Conrad and the main inconvenience was in the frozen water lines and slow travel.

The H.C.&O. Oil & Gas Co. secured a tract in the NW of Section 34-35-1 by purchase and will drill a well as soon as weather permits. The lease comprises 40 acres and is in the central part of a good pool in the Sunburst Field.

ROCKY MOUNTAIN PRODUCTION
Daily Average Runs Week Ended February 16

WYOMING	
Salt Creek	34,240
Big Muddy	2,280
Grass Creek	2,210
Elk Basin	720
Ferris	50
Rock River	2,350
Lance Creek	300
La Barge	2,680
Poison Spider	1,070
Oregon Basin	3,350
Osage	470
Lander	450
Byron	40
Lost Soldier	3,350
Simpson Ridge	60
Dutton Creek	50
Rex Lake	120
Hamilton Dome	720
Greybull	10
Total Wyoming	54,520
MONTANA	
Cat Creek	1,390
Kevin-Sunburst	6,740
Pondera	1,850
Total Montana	9,980
COLORADO	
Florence	1,264
Moffat	1,062
Fort Collins	2,491
Iles Dome	1,545
Rangely	100
Tow Creek	414
Boulder	25
Total Colorado	6,901
NEW MEXICO	
Rattlesnake	...
Hogback	220
Artesia	962
Cap Rock	119
Table Mesa	466
Total New Mexico	1,767
Total Rocky Mountain	73,168

DEVELOPMENTS MADE IN PETROLEUM REFINING

(Continued from Page 30)

stay abreast of the rapidly mounting consumption and (3) curtailment of the fuel oil market with consequent reduction of selling price. Wider natural gas distribution, particularly in the Middle West, together with determined competition from the coal industry, has materially affected the fuel oil situation, and added a very strong incentive toward the necessity of obtaining the maximum yield from a barrel of crude by cracking.

It is doubtful if the crude oil producers took into account the fact a few years ago that the refiners had opened a way to doubling their gasoline yield by the installation of modern equipment. Neglecting the fact that 1 bbl. of crude now produced the same amount of gasoline that 2 bbls. formerly did, the producers maintained a steady increase in production so that when coupled with increased ultimate recovery, the production of gasoline far exceeded consumption and as a result, the oil industry passed through an era where there were no profits.

Liquid Phase Cracking

There have been no big innovations or radical changes in liquid phase cracking equipment during the past year or so. However, there have been many improvements and the present trend is toward larger capacity units, higher fuel efficiency, finishing gasoline direct from units and controlled operation so as to produce gasoline with better antiknock properties. Higher operating pressures, reduction of coke and fixed gases, retardation of corrosion and other problems are being worked out so that we may expect to see improvements. Methods are being developed to recover valuable by-products including alcohols, esters and various types of synthetic products.

Much progress has been made during the past year in the development of the vapor phase pressure still. Several workable processes have been developed and a number of commercial installations have been made. Gasolines having high antiknock properties are produced by this method. It is a fact that the vapor phase pressure stills produce a larger quantity of fixed gas. This gas has a large unsaturated hydrocarbon content which may be recovered and probably converted into valuable products through synthetic chemistry.

The recent production of crudes having high sulphur content has presented a new problem to the refiner by corrosion of his equipment; indeed, distilling equipment has been eaten up in a few months when distilling this crude. The refiner is attempting to combat this condition to the best of his ability by various methods such as pretreatment of crude with alkalies, injection of ammonia and caustic into vapor lines, condensers, exchangers, towers and stills. Liquid caustic is added in run-down lines to eliminate corrosion in lines and tanks. Various types of lead-clad roofs and coatings of protective paint are used in tanks. There is the possibility of the use of aluminum tanks for resisting corrosion as they are not affected by the various sulphur compounds.

Corrosion Problem

The pressure still presents the most vital problem of corrosion in the refinery since there is not only the high cost of replacement to be considered but also the element of operating danger. Various methods of reducing corrosion in pressure stills have been evolved, as lime injected into charging stocks, the adaptation of various alloys in valves, lines, tubes and chambers, chief among these corrosion inhibitors being chromium and nickel. One of the outstanding developments of this year has been the development of nonmetallic coatings for interiors of cracking chambers as well as liners.

Production of lubricating oils is another profitable phase of operation and one which balances out the refinery. The investment is high and the operation complex; however, the return is good and the price and consumption are fairly stable.

Several new features have come into practice in regard to the processing of lubricating oils in recent times. Vacuum distillation in all its aspects is probably foremost among these. For some time vacuum distillation has been successfully applied to batch shell stills in the production of asphalt base crude oils. The latest development has been to adapt the pipe still to vacuum still practice using suitable fractionating equipment designed to make as many cuts as desired. Overheating of oils causing breaking down is avoided in this type installation and maximum yields of lubricating oils are secured. A new development in vacuum still practice is the use of an indirect heating medium such as mercury vapor or diphenyl.

The atmospheric pipe still and bubble cap tower have been applied to the reduction of pressed distillate and the yields greatly increased. For some time the sulphur dioxide treating method has been applied to light oils; however, lately this treating has been applied to lubricating oils manufactured from certain crudes with favorable results. Lately commercial production of wax free oils or very low cold test paraffin base oils, has been developed.

Manufacturers of Equipment

The refiner cannot claim all the credit for the development of improved equipment as the manufacturers themselves have contributed largely to this constructive progress. Co-operation and distribution of information between the refiners and equipment manufacturers has led to a better understanding of the problems involved and permitted a much more widely spread utilization of up-to-date processing. Space will not permit the naming of dozens of improvements which are small and highly technical but which nevertheless, have a vital part in plant operation. The development of the art of welding has played a very prominent part in the advancement of refinery technique since many pieces of equipment are in use which would be almost impossible to construct and maintain were old pipe fitting methods employed.

One of the most interesting, if less specific, developments of recent times, is the stimulation of research—especially co-operative research. Perhaps the art of refining was much retarded by the rather futile method of independent research since much progress and effort were duplicated. The old way was to consider every development a trade secret while today the refining industry is considering programs of co-operative research to expedite the industry as a whole.

NOW LOOKING FORWARD WITH CONFIDENCE

(Continued from Page 30)

by the feeling that when the drills get busy there will always be sufficient oil to supply the demand. The latter hypothesis has never thus far been disproved. However, the geological sciences are developing at a rapid pace and the rate of discovery of oil pools has also increased rapidly. It is probable that at a time in the future practically all the petroliferous provinces will be de- in area and tested to at least mod- depths. The outlook then will depend the economic or physical depth po to drill, the more intensive develop- of the known shallower pools, and substances.

In connection with the development new oil supply it is necessary to pres the role played by the petroleum geolo- Detailed surface geology still plays very important part in the finding new oil pools, although practically gi up by many as an important method eral years ago. There are yet fairly l unexplored areas in the United St where early prejudices or insuffici data have caused lack of exploration; addition, it has been found that large proportion of the early surface tail work now bears checking over, in light of later facts.

The subsurface geologist contribu- many facts helpful in both locating pools and developing proved oil po from the studies of the formation rese of wells drilled in the past. Altho this branch of geology is comparati young, there already has been develo highly organized systems for the preser tion and use of records of wells dri throughout all oil-producing areas.

The regional geologist uses the fa of both the surface and subsurface i dents, and endeavors to see the bro regional aspects of sedimentation a structure, keeping in mind at the s time evidence contributed by surface a subsurface facts. His work is to la far ahead of present development a production, and foresee new oil provinc

That there is enough room and pleny of possibilities for the discovery of fields in the known petroleum provinc for several years to come seems a fa assumption. The major geologic featu in the Mid-Continent area, the Kans Oklahoma and Texas salt basin, will s extended exploration in West Texas a into the southeast corner of New Mexi in central and western Oklahoma and central and western Kansas. In Cal fornia much exploration is expected i both the Los Angeles basin and the S Joaquin Valley basin where new po have been recently opened.

Results of 1928 and the Present Situati

More definite realization of the gre need of getting together to solve th problems of stabilizing oil production an oil prices means the passing of one di tinct milestone along the path of th progress of the industry.

Men engaged in the oil industry's vari- ous branches are getting together mor often than ever before, and the road a being paved for still further co-operati and organization, benefits from whic promise to be certain to all engaged i the industry. These get-togethers and their results contribute materially to th oil industry's good will, and greater co- operation with the public is gained thereby.

Concerning the immediate situation i can be stated that the tendency has bee to discount too readily the millions o barrels of shut-in reserves in the Hen- dricks and Yates areas in West Texas It appears fair and equitable that mor of the major oil-producing areas prorat production, each bearing its proportiona burden, rather than that two or three areas bear the entire burden.

Posted prices for oil have remained steady for nearly two years, and at a figure believed to be much above whic they would have declined to, had not the large shut-in reserves been set up, or had flush production been allowed to mount to its peak, as has been the usual history in an era of overproduction. New drilling has been held to a minimum, wild- wildcatting noticeably restricted. A ten- dency toward stabilization can be ob- served all along the line, in producing, re- fining and marketing divisions, and the industry has escaped, at least for a time, that alternating condition of "feast or famine" which it had come to regard as its own peculiar and chronic affliction.

When the posted prices for crude oil first reached their low levels in early 1927, considerable time was spent in well- informed circles calculating the speed with which most oil-producing companies

were approaching bankruptcy. Activity was at a low ebb, with only 750 new wells drilling, the fewest new wells per month in over 10 years.

At the present time, with the poorest consumption season at hand the number of new wells has increased to 1,050—the average of the number of new wells in the prosperous years of 1925 and 1926, and there has been no significant rise in average oil prices since those very low levels of 1927.

Instead of being involved in the promised bankruptcy the average oil company is now able to make a profit, and many are even undergoing programs of mild expansion, shown by the recent increase in the number of new wells drilling.

In review, the whole economic balance of the industry today is founded and dependent upon co-operative limitation of oil production; the patient has had a phenominal recovery, and tends to forget how ill he was, and although his strength is returning fast, he had best take precautions to prevent a relapse—an event of very serious consequence in his present weakened condition.

The present minute finds oil production at its highest all-time peak, new drilling activity at the highest point in the last two years, consumption at the lowest season, and substantial addition to stocks scheduled for the first half of 1929, unless this additional substantial production is shut in.

All in all, the year 1929 as a whole, is looked forward to with confidence because a majority of the leaders in the industry are in favor of balancing supply and demand.

FREEZING OR BRIDGING TURNER VALLEY PUZZLE

CHATHAM, Ontario, Feb. 16.—Operators in the Turner Valley Field of southern Alberta are not by any means through their problems when a well is brought in. While the deep lime producers in this field yield wet gas under tremendous pressure, difficulties are sometimes experienced in maintaining production, due, as is generally thought, to "freezing."

Practically all of the "deep-lime" producers have had this experience, though with some it is more frequent than with others. At irregular intervals the steady flow of wet gas is interrupted, occasionally reduced, and more often entirely shut off. A well may stand unproductive for as much as a month, or even more. Then the well blows in again and resumes production. Usually the initial production after a well thus blows in is for a time somewhat larger than immediately before it quit producing.

Most operators hold the theory that the expansion of the wet gas under high pressure induces freezing in the well. In support of this theory the fact is adduced that even in the hottest midsummer weather the pipe lines and separators above ground are heavily coated with hour frost, and it has generally been held that the same process in an accentuated degree takes place in the well in or just above the producing sand.

The freezing occurs only in the crude naphtha wells which secure their production in the Madison limestone. The shallower Dakota-Blairmore and other light crude producers are unaffected by freezing.

The theory has been urged that bridging rather than freezing is the leading factor in blocking production in these deep wells. G. H. Cloakey of the McLeod Oil Co. points out in support of this theory that on one occasion No. 1 McLeod was blocked by a very perceptible bridge of stones so close to the top that a long crowbar was sufficient to clear the hole. The same well, which is a typical deep-lime producer, after being under heavy back pressure often throws out stones as large as a hen's egg, and it is argued that when a quantity of these are forced up the pipe they lodge and form a bridge with the freezing, of course, a contributing factor. Heretofore the theory has been that freezing occurred at the bottom of the well in the dolomite lime itself, shutting off the gas at its source.

BOLIVIA REVISING ITS PETROLEUM LAWS TO ENCOURAGE DEVELOPMENT

By Gilbert P. Moore
Geologist, New York*

Bolivia does not yet have any production which is being marketed. It does have a potential production, however, from wells which have been completed by the Standard Oil Co. of Bolivia, a subsidiary of the Standard Oil Co. of New Jersey. No other company is active in drilling and development work to date. The total potential production from wells now completed is about 6,000 bbls. daily.

Completions during 1928 and their initial production, if any, were as follows: Camatindi No. 1, 350 to 1,000 bbls.; Camiri No. 1, 500 bbls.; Sanandiat No. 3, 100 bbls.; Tatarenda No. 1 dry hole, and Bermejo No. 2, deepened 50 feet made 1,000 bbls.

The most striking development of the year was the Camiri No. 1, which, after just entering the sand, made 500 bbls. per day of 52 degrees Baume oil. This well is the northernmost good producer which the Standard has brought in to date. Oil from this well is used without refining in the tractors and trucks of the company. A small topping plant has been installed from which high grade gasoline is obtained for use in motor cars and some is being produced for the use of air planes stationed at Villa Montes.

The results for Sanandita No. 3 were somewhat disappointing since Sanandita No. 2 was rated at about 3,000 bbls. Tatarenda No. 1, located on a large unbroken structure, was drilled to 4,000 feet and abandoned as a dry hole.

Bermejo No. 2 was deepened 50 feet to 2,085 feet and on a 10-day test averaged 1,000 bbls. per day. This well is on the border between Bolivia and the Argentine.

Wells Drilling

The wells drilling are Camiri No. 2, Sanandita No. 5, and Bermejo No. 5. This is the smallest number of wells drilling which the Standard has had for several years principally due to the number of recent completions from which the tools have not yet been moved. Bermejo No. 5 is expected to be a good well as it is located in a better position on the structure. Sanandita No. 5 is said to be lower on structure than the other Sanandita wells.

The Standard Oil Co. of New Jersey and the Bolivian Petroleum Corp. are the only American companies now represented in the oil business in Bolivia. The Standard Oil Co. has reduced its holdings to slightly less than 1,000,000 hectares. About half of this area was selected from its original concession and the remainder was bought from different owners. It has all been consolidated into one concession.

The Bolivian Petroleum Corp. which formerly held 1,250,000 hectares on the Altiplano has reduced its holdings to 375,000 hectares. Of the original holdings, 125,000 hectares were retained and 250,000 hectares were acquired to the east near the consessions of the Standard Oil Co. and along the route of the railway now under construction from Cochabamba to Santa Cruz. This company has as yet done no drilling.

Bolivian Imports

Bolivia imports crude oil and refined products to the value of approximately $1,300,000 annually and its imports are constantly increasing. The number of automobiles in the country is not large. A big program of road construction is now under way, the principal construction being to the east of the towns of Cochabamba and Sucre. Simon Patino has proposed the building of a road from Cochabamba to the Chapare country, and this has been accepted by the Bolivian Congress. The construction of this road will give Patino several concessions in the way of lands for colonization, water power rights over a large area, and oil rights over most of the Chapare Basin.

Fuel oil retails for about $8 United States gold per barrel in Bolivia and gasoline for 51 cents per gallon. Most of this is supplied from Peru.

During the past year the railroad from the Argentine to Vacuiba in Bolivia, has been advanced to a point some 9 miles from the Bolivian border. This has greatly facilitated the movement of drilling equipment and storage material to the eastern Bolivian fields. A system of motor roads has been completed which connects all of the camps of the Standard Oil Co. and trips which formerly took 15 days on muleback are now made in 2 or 3 days by automobile. These roads are not often used in the wet season due to the many streams to be crossed.

Passenger Service Established

A regular passenger service by automobile from the end of the rails in the Argentine to Villa Montes and occasionally to Charagua has been established. Several independently owned trucks are doing heavy hauling for the Standard Oil Co.

The firm of Kennedy & Carey, of New York, was awarded the contract for the construction of the first section of the Cochabamba-Santa Cruz Railway. This work will be finished about April, 1930. The section will extend to Aiquile, some 200 kilometers in the direction of the eastern oil fields. From Aiquile an auto road is being built to Samaipata. This will eventually be extended to Santa Cruz and will connect up with the automobile road of the Standard leading south to Argentine.

It is also possible to reach these fields by airplane from Cochabamba. Weekly flights are made from Cochabamba to Santa Cruz and biweekly flights from Santa Cruz to Yacuiba. The first of the above mentioned flights takes about 2½ hours. The second is of about 4 hours duration. Flights are made in Junkers monoplanes carrying two pilots and four passengers.

New Petroleum Legislation

For the past two or three years there has been talk among members of the Bolivian Congress regarding the necessity of revising the petroleum law of the country. This was brought to a head this year by the Minister of Industry who called a meeting on July 19, and appointed a committee to undertake the revision.

This committee practically rewrote the whole law. All of the vague phrasing of the articles retained from the present law was eliminated. Since the president of the committee is a member of the Royal Spanish Academy of Letters, it is believed that the project of the new law is perhaps the most clearly and definitely stated of any law of the Latin-American countries. Numerous changes were introduced into the law. Among the most important are the following:

The Republic of Bolivia was divided into four zones on the basis of existing transportation facilities and markets. The presence or absence of petroleum in these zones was not taken into consideration. Every five years a revision of the zones is to be made on the same basis as given above and new limits fixed for each zone.

The taxes in each of the four zones were established on a scale grading downward from 2½ cents in the first zone to one cent in the fourth zone. This is for the period of geologic exploration. The size of concessions for exploration is graded upward from 100,000 hectares in the first zone to 400,000 hectares in the fourth zone.

The period allowed for geologic exploration ranges from two years in the first zone to five years in the fourth zone.

Guarantee Deposit Abolished

The deposit of guarantee of 10 centavos per hectare (approximately 3.6 cents in United States gold) which is required on concessions for exploration under the present law is suppressed. The State received no revenue from this source as the interest on the money was paid to the depositor and it was believed that this was a stumbling block to the entry of national capital in the oil business. A registration fee grading downward from 1 centavo per hectare in zone 1 to one-fourth centavo per hectare in zone 4 was substituted for this deposit guarantee. This fee will represent a small income for the Government and will probably cover the expense of the registry office.

The concessions for exploitation were divided into two periods. The first is the "Period of Preparatory Drilling" during which one well for every 50,000 hectares or fraction thereof contained in the concession must be drilled within a time limit from two years in the first zone to five years in the fourth zone. The second is the "Period of Production" during which wells must be drilled at the rate of one per year for each 10,000 hectares or fraction thereof, contained in the concession.

Concessions for exploitation may contain from 50,000 hectares in the first zone up to 200,000 hectares in the fourth zone. The time allowed for drilling the preparatory wells of the first period ranges from two years in the first zone to five years in the fourth zone. Taxes range from 6 centavos per hectare per year in the first zone down to 3 centavos per year in the fourth zone.

Registry Fee Substituted

The deposit of 250 Bolivianos (about $90) for each 1,000 hectares of the concession, as required under the present law, is suppressed and a registry fee substituted. This ranges from 5 centavos in the first zone down to 2 centavos in the fourth zone.

Concessions for exploitation are granted for a period of 50 years. This includes both the first and second periods.

During the "Period of Production" the taxes are graduated in a rising scale for the first seven years. These taxes range from 10 centavos per hectare during the first year to 50 centavos per hectare during the seventh year and thereafter in the first zone, and 5 centavos per hectare during the first year to 25 centavos during the seventh year and thereafter in the fourth zone, to the fifteenth year when all zones pay 50 centavos per year per hectare.

Royalties to the State are 12 per cent in zone 1, 11 per cent in zones 2 and 3, and 10 per cent in zone 4. A diminishing scale of royalties to the State is established for increased production, the percentage being gradually reduced as the amount of production increases until an output of 10,000,000 bbls. per year on each concession is produced when the royalty to the State is only 7 per cent.

Objectionable Feature Removed

The fixed minimum of production as prescribed by the present law is suppressed. This is a very good move as it is one of the most objectionable features of the present law.

Depreciation rates for various installations used in the oil industry are fixed at fair rates. The present law allows a maximum of only 10 per cent on any sort of equipment and 5 per cent on most of it.

A reciprocity clause is inserted in the new project of law as well as a clause stating no concessions will be granted to either nationals or foreigners within 50 kilometers of the frontiers of the republic.

The petroleum industry is classed as a public utility and may be expropriated by the Government for any reason.

The new law is thought to be a very fair one for both the Government and the oil industry. Certainly there is no other in South America where it costs less to get started than in Bolivia. The new law was drafted with the idea of giving all possible encouragement for the entry of foreign and national oil companies. Until now Bolivia has been dependent on the tin-mining industry for its national income and it is believed that petroleum is probably its next best asset and should be developed as soon as possible. This new project of law has not yet been enacted. It has the approval of the Minister of Industry and by this time has probably been presented to Congress.

Future of Bolivian Production

It is certain that Bolivian petroleum will not appear on any market during the next 10 years with the possible exception

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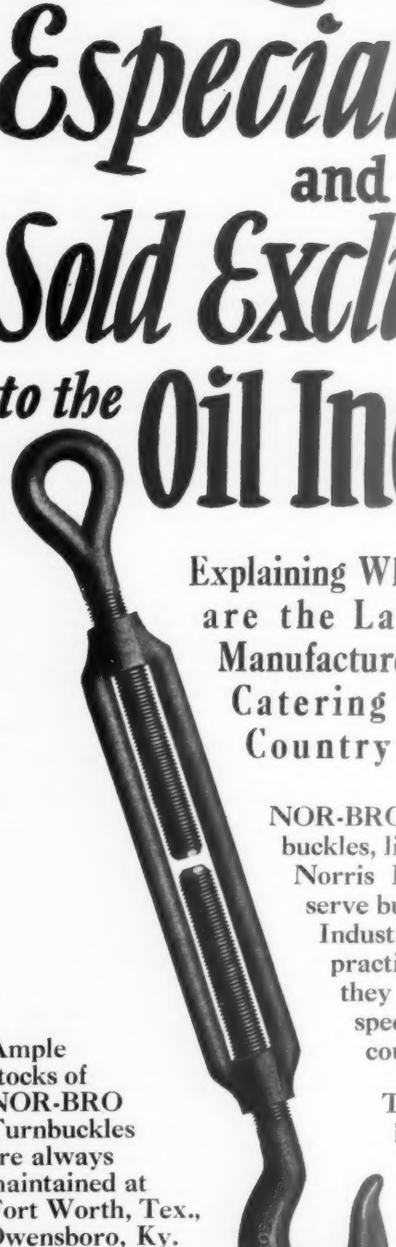

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of the Argentine market. The Standard Oil Co. of New Jersey under its present contract with the Bolivian Government, is obligated to begin production January 1, 1930. However, it is probable that this production will be held down to a minimum since the company has wells now producing in the northern Argentine from which crude oil and refined products can be supplied to the Argentine markets much more cheaply than from their scattered Bolivian wells.

The oil from the eastern Bolivian fields will be handled in one of two ways. Either pipe lines must be laid down from the fields to the Paraguay River or the Bermejo River to points where tankers or barges can receive the oil for w transportation to Buenos Aires or a r finery must be built at railhe (Yacuiba) and only refined produc shipped to the Argentine markets. T pipe line to water transportation wou be comparable to that of the Andean N tional line in Colombia and at probabl greater cost due to longer transportati of materials from the States of Boliv The refinery would probably cost mu less but for either mode of transportati a large potential supply of oil must b in sight before such an operation co be undertaken with safety.

Bolivia presents no menace to the pre ent world oil situation.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 40)

W. S. Hillyer's No. 1 McGregor, C NW Sec. 14, Blk. 81.. Shut down 530 ft.
Scott & Dittman's No. 1 Miller, 1,160 ft. N and 2,480ft. E Sec. 1, Blk. 97, Public School Land..... Rainbow 1,056 ft.; 300 ft sulph water 1,725 ft.; shut down casing 1,767 ft.

DAWSON COUNTY

Magnolia Petroleum Co.'s No. 1 W. A. Jetter, C Sec. 1, Blk. 34, Twp. 4n ..... Top salt 1,650 ft.; top lime 1 ft.; set 10-in. casing 1,811 oil show 3,856 ft.; drlg. ft.: 3,500 ft. salt water at ft.; rainbow at 4,263 ft.; down 4,320 ft.

FISHER COUNTY

Bickerstaff et al's No. 1 McWhirter, 2,640 ft. E and 150 ft. N of SW cor. of Sec. 295, Blk. 2, H.&T.C. Sur. .... Shut down 2,000 ft. for orders
Cranfill & Reynolds' No. 1 Brown, 330 ft. S and E of NW cor. Sec. 4, W. E. Richardson Sur. ..... Run 10-in. 2,575 ft.
Cranfill & Reynolds' No. 2 Willingham, 1,980 ft. S and 2,310 ft. W of NE cor. Sec. 207, B.B.B.&C.R.R. Sur.... Drlg. 920 ft.
Cranfill & Reynolds' No. 1 Fleming, 1,980 ft. S and 2,310 ft. E of NW cor. Sec. 207, B.B.B.&C.R.R..... Drlg. 1,850 ft.
Dunnegan Bros.' No. 1 T. Henry, 330 ft. N and E of SE cor. Sec. 21, George W. Burdett Sur. No. 322, but in Sec. 4, Robert Hibbitt Sur. No. 331..... Underreaming 2,050 ft.
Gilman-McMurray & French's No. 1 Cleveland, 781 ft. N and 1,336 ft. W of SE cor. Sec. 116, Blk. 2, H.&T.C. Sur. ..... Set 8-in. casing 685 ft.
Hucony Gas Co.'s No. 1 D. F. Maberry, 1,078 ft. S and 188 ft. W of NE cor. Elijah Bell Sur. No. 327..... Hole full salt water 2,735 ft.; lime 2,960 ft.; pay 2,964-78 show oil and water; set 3,195 ft.; shut down 3,250 ft.
Landreth Prod. Corp.'s No. 1 Cooper, 440 ft. SE of NE cor. NW Sec. 115, Blk. 1, H.&T.C. Sur..... Drlg. 1,950 ft.
Mesa Oil Co.'s No. 1 Griffin, 849 ft. N and 465 ft. E of NE cor. Sec. 20, School Land..... Rig.
Roeser & Pendleton's No. 1 Haught, 440 ft. S and 1,320 ft. E of NW cor. of SW of Sec. 191, B.B.B.&C.R.R. Sur. ..... Location.
Texas-Phillips' No. 1 Hall, 330 ft. N and W of SE cor. Sec. 6, Blk. 20..... Moving in material.
Thompson et al's No. 1 Newman, 1,320 ft. N and 660 ft. W of SE cor. of SW Sec. 44, Blk. 1, H.&T.B. Sur..... Top lime 2,810 ft.; good show 2,843-45 ft.; drlg. 3,136 ft.

GAINES COUNTY

Pure Oil Co.'s No. 1 A. A. Williamson, 1,650 ft. S and 330 ft. W of NE cor. Sec. 110, Blk. H, D.&W.R.R.... Top salt 2,339 ft.; drlg. 3,292 ft.

GARZA COUNTY

Emerald Oil Co.'s No. 4 J. M. Boren, 330 ft. S and W NE cor. Sec. 136, Blk. 5, H.&G.N. Sur. ..... Drlg. 1,500 ft.

GLASSCOCK COUNTY

Chas. Daniel et al's No. 1 Meek, 2,310 ft. W and 1,600 ft. N of SE cor. Sec. 7, Blk. 34, Twp. 3s, T.&P. Sur... Spudded and shut down.
Gibson & Johnson's No. 1 Mann, C NW Sec. 6, Blk. 33, T.&P. Sur. ..... Drlg. 2,360 ft.
R. R. Penn's No. 1 Hughes-Johnson, C NW Sec. 45, Blk. 30, W.&N.W. Sur. ..... Drlg. 2,112 ft.
Marland Prod. Co. et al's No. 7-A Settles, 2,310 ft. S and W of NE cor. Sec. 158, Blk. 29, W.&N.W. Sur. ... Location.
McElreath & Suggett's No. 1 Underwood, C NE Sec. 24, Blk. 36, Twp. 4s, T.&P.R.R. Sur. ..... Location.
Meriweather Oil Co.'s No. 2 McDowell, 1,492 ft. N and 150 ft. E of SE Sec. 35, Blk. 34, Twp. 2s, T.&P. Sur... Hole full water 2,665 ft.; set 6- casing 2,700 ft.; drlg. 2,730 f
Sprague Oil Co.'s No. 4 Roberts, 1,650 ft. S and 330 ft. E of NW cor. Sec. 156, Blk. 29 ..... Total depth 3,019 ft.; preparing pump.
World Oil Co.'s No. 1-C McDowell, 1,650 ft. S and 2,310 ft. W of NE cor. Sec. 21, Blk. 34..... Shut down 750 ft.
White Eagle Oil & Ref. Co.'s No. 1 Dunbar, C of NW Sec. 46, Blk. 34, Twp. 4s, T.&P.R.R. Sur. ..... Drlg. 2,475 ft.

HOWARD COUNTY

Ameranda Pet. Co. & Rycade Oil Corp.'s No. 7 Dora Roberts, 330 ft. S and 2,310 ft. W of NE cor. Sec. 137, Blk. 29, W.&N.W.R.R. Sur. ..... Location.
American Maracaibo Co.'s No. 1 Settles-D, 330 ft. S and 1,650 ft. E of NW cor. Sec. 158, Blk. 29, W.&N.W. R.R. Sur. ..... Spudded and shut down.
American Maracaibo Co.'s No. 4 Settles-C, 1,373 ft. S and 3,023 ft. E of NW cor. Sec. 6, Blk. 32, Twp. 2s.... Drlg. 1,537 ft.
American Maracaibo Co.'s No. 5 Settles-C, 330 ft. S and W of NE cor. Sec. 6, Blk. 32, Twp. 2s, T.&P. ..... Rigging up.
Bristow & Merrick's No. 10 Hooks, 660 ft. S and 2,440 ft. E of NW cor. Sec. 140, Blk. 29, W.&N.W.R.R. Sur... Drlg. 1,795 ft.
California Co.'s No. 1 Settles, 2,310 ft. N and W of SE Sec. 158, Blk. 28, W.&N.W. Sur..... Drlg. 2,800 ft.
Cosden & Co.'s No. 2 Roberts-C, 1,540 ft. N and 990 ft. E of SE cor. Sec. 128, Blk. 29, W.&N.W.R.R. Sur.. Fishing 1,316 ft.
Coyle & Concord Oil Co.'s No. 6 D. Roberts, 1,650 ft. S and 150 ft. W of NE cor. Sec. 156, Blk. 29, W.&N.W. R.R. Sur. ..... Drlg. 1,510 ft.
Cranfill & Reynolds' No. 1 Kloh-Rumsey, 353 ft. N and 150 ft. W of SE cor. Sec. 3, Blk. 32, Twp. 2s, T.&P.R.R. Sur. ..... Underreaming 648 ft.
Empire Gas & Fuel Co.'s No. 2 Clay, 785 ft. N and 1,570 ft. W of SE cor. Sec. 127, Blk. 29, W.&N.W.R.R. Sur.. Set 8-in. casing 1,440 ft.
F. H. E Oil Co.'s No. 11-B Dora Roberts, 1,700 ft. S and 2,310 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. ..... Shut down 259 ft.
F. H. E Oil Co.'s No. 5-D Dora Roberts, 2,310 ft. S and 1,650 ft. E of NW cor. Sec. 136, Blk. 29..... Set 6-in. casing 2,930 ft.; shut down.
Green Oil Co. et al's No. 1 J. W. Furrh, C SW cor. Sec. 11, Blk. 31 ..... Top lime 2,100 ft.; set 6-in. casi 2,865 ft.; shut down 3,502 ft.
Green et al's No. 1 Slaughter, C SW Sec. 32, Blk. 31, Twp. 3n, T.&P.R.R. Sur. ..... Rig.
Group 1 Oil Co. & Marland Prod. Co.'s No. 1 Overton, 1,650 ft. N and 2,310 ft. W of SE cor. Sec. 5, Blk. 32, Twp. 2s, T.&P. Sur. ..... Drlg. 896 ft.
Group No. 1 & Marland Prod. Co.'s No. 5 Settles, 2,310 ft. S and 330 ft. E of NW cor. Sec. 133, Blk. 29, W.&N.W.R.R. Sur. ..... Drlg. 2,009 ft.
Group No. 1 & Marland Prod. Co.'s No. 6 Settles, 2,310 ft. N, 330 ft. E of SW Sec. 133, Blk. 29..... Drlg. 1,708 ft.

Group No. 1 and Marland Prod. Co.'s No. 7 Settles, 330 ft. S and E of NW cor. Sec. 133, Blk. 29, W.&N.W. R.R. Sur. ..... Location.

L. C. Harrison et al's No. 1 G. M. Podge Est., SE cor. Sec. 9, Blk. 30, Twp. 1s, T.&P. Sur. ..... Hole full salt water 1,475-1,505 ft.; top lime 1,825 ft.; show oil 2,972-74 ft.; hole full fluid 3,257 ft.; total depth 3,257 ft. Plugged back to 3,000 ft. to shoot.

Howard County Oil Corp.'s No. 1 Kloh, 990 ft. S and 1,170 ft. E of NW cor. Sec. 5, Blk. 32, Twp. 2s, T.&P.R.R. Sur. ..... Junked hole 1,005 ft.; skidded derrick 160 ft. west; total depth 2,250 ft.; swabbed 1,024 bbls. 24 hrs.

Hyer & Yates' No. 3 Clay, 990 ft. S and 2,310 ft. W of NE cor. Sec. 165, Blk. 29, W.&N.W. Sur. ..... Drlg. 1,855 ft.

Hyer & Yates' No. 4 Clay, 990 ft. S and 1,650 ft. W of NE cor. Sec. 155, Blk. 29 ..... Location.

Humble Oil & Ref. Co.'s No. 1 H. R. Clay, 990 ft. S and 330 ft. E of NW cor. Sec. 138, Blk. 29, W.&N.W. Sur. ..... Drlg. 1,230 ft.

Humble Oil & Ref. Co.'s No. 2 Clay, 330 ft. N and 2,310 ft. E of SW cor. Sec. 138, Blk. 29, W.&N.W. R.R. Sur. ..... Drlg. 1,200 ft.

Laurel & Cosden's No. 9 Roberts, 1,650 ft. N and 330 ft. W of SE cor. Sec. 136, Blk. 29, W.&N.W. Sur. ..... Run 6⅝-in. casing 2,950 ft.; rigging up standard tools.

Laurel Oil & Gas Co. and Cosden's No. 10 Dora Roberts, 990 ft. N and 330 ft. W of SE cor. Sec. 136, Blk. 29, W.&N.W. Sur. ..... Cem. 8¼-in. casing 1,586 ft.; drlg. 2,370 ft.

Magnolia Pet. Co.'s No. 13 Dora Roberts, 2,440 ft. N and 1,650 ft. E of SW cor. Sec. 136, Blk. 29, W.&N.W. Sur. ..... Rigging up standard tools 2,927 ft.; shut down.

Magnolia Pet. Co.'s No. 18 D. Roberts, 405 ft. N and 330 ft. E of SW cor. Sec. 135, Blk. 29, W.&N.W. R.R. ..... Rigging up.

Marland Prod. Co.'s No. 12 Clay-A, 250 ft. S and 1,533 ft. W of NE cor. Sec. 139, Blk. 29, W.&N.W. Sur. ..... Drlg. 1,528 ft.

Marland Oil Co.'s No. 3-C Chalk, 660 ft. S and 2,440 ft. W of NE cor. Sec. 140, Blk. 29, W.&N.W. Sur. ..... Shut down 1,770 ft.

Marland Prod. Co.'s No. 3 Clay-F, 250 ft. S and 660 ft. W of NE cor. Sec. 138, Blk. 29, W.&N.W.R.R. Sur. ..... Drlg. 1,765 ft.

Marland Prod. Co.'s No. 7 Clay, 990 ft. S and W of NE cor. Sec. 155, Blk. 29, W.&N.W.R.R. Sur. ..... Location.

Marland Prod. Co.'s No. 3 Clay-G, 786 ft. N and 1,570 ft. E of SW cor. Sec. 126, Blk. 29, W.&N.W.R.R. Sur. ..... Drlg. 1,280 ft.

Marland Oil Co.'s No. 8-A Settles, 2,310 ft. N and E of SW cor. Sec. 158, Blk. 29, W.&N.W. Sur. ..... Location.

Midwest Exp. Co.'s No. 2 Clay-C, 330 ft. N and 1,650 ft. W of SE cor. Sec. 138, Blk. 29, W.&N.W.R.R. Sur. ..... Drlg. 1,145 ft.

Midwest Exploration Co.'s No. 3 Clay-C, 330 ft. N and 990 ft. W of SE cor. Sec. 138, Blk. 29, W.&N.W.R.R. Sur. ..... Shut down 260 ft.

Marland Prod. Co.'s No. 3 Clay, Lease G, 785 ft. N and 1,570 ft. W of SW Sec. 126, Blk. 29, W.&N.W.R.R. Sur. ..... Drlg. 1,280 ft.

Moody Oil Co.'s No. 14 Roberts-B, 380 ft. S and 2,310 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W.R.R. Sur. ..... Location.

Moody Oil Co.'s No. 15 Roberts-B, 2,310 ft. S and 380 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W.R.R. Sur. ..... Location.

Moody Oil Corp.'s No. 13 D. Roberts, 2,310 ft. S and 2,260 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W.R.R. Sur. ..... Location.

Moody Oil Corp.'s No. 10 Roberts-E, 2,310 ft. S and 280 ft. W of NE cor. Sec. 136, Blk. 29, W.&N.W.R.R. Sur. ..... Drlg. 1,300 ft.

Merrick & Bristow's No. 8 Dora Roberts, 990 ft. N and 330 ft. E of SW cor. Sec. 137, Blk. 29, W.&N.W. Sur. ..... Cem. 8¼-in. casing 1,929 ft.; rigging up standard tools.

Merrick & Lamb's No. 7 Clay, 250 ft. N and 1,535 ft. W of SE cor. Sec. 126, Blk. 29, W.&N.W.R.R. Sur. ..... Underreaming 1,000 ft.

Phillips Pet. Co.'s No. 1 J. Thomas, 330 ft. N and W of SE cor. Sec. 13, Blk. 33, Twp. 1n, T.&P. Sur. ..... Topped lime 3,030 ft.; hole full sulphur water; drlg. 3,950 ft.

Pure Oil Co.'s No. 11 Chalk, 2,310 ft. N and 1,060 ft. W of SE cor. Sec. 125, Blk. 29, W.&N.W.R.R. Sur. ..... Drlg. 1,140 ft.

Schermerhorn Oil Co.'s No. 4 Roberts-A, 2,304 ft. S and 2,306 ft. W of NE cor. Sec. 137, Blk. 29, W.&N.W. R.R. Sur. ..... Drlg. 2,185 ft.

Schermerhorn Oil Co.'s No. 5 Roberts-A, 1,650 ft. S and 2,250 ft. W of NE cor. of Sec. 137, Blk. 29, W.&N.W. Sur. ..... Drlg. 1,307 ft.

Shell Pet. Corp.'s No. 1 Settles, 990 ft. E and 330 ft. N of SW cor. Sec. 135, Blk. 29 ..... Cemented 8¼-in. casing 2,141 ft.; drlg. 2,614 ft.

Sun Oil Co.'s No. 6 Settles, 915 ft. N and 330 ft. W of SE cor. Sec. 135, Blk. 29, W.&N.W. Sur. ..... Total depth 2,558 ft.; preparing to pump.

Superior Oil Co.'s No. 14 Dora Roberts-B, 2,310 ft. E and 380 ft. S of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. ..... Location.

Superior Oil Co.'s No. 15 Dora Roberts-B, 2,310 ft. S and 380 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W.R.R. Sur. ..... Location.

Taylor-Link Oil Co.'s No. 2 Kloh-Rumsey, 1,884 ft. E and 150 ft. N of SW cor. Sec. 3, Blk. 32, Twp. 2s, T.&P.R.R. Sur. ..... Drlg. 2,150 ft.

Ward Oil Co.'s No. 3 Dora Roberts, 2,310 ft. N and E of SW cor. Sec. 137, Blk. 29 ..... Set 6-in. casing 2,951 ft.

Ward Oil Co.'s No. 5 Roberts, 1,650 ft. N and 330 ft. E of SW cor. Sec. 137, Blk. 29 ..... Shut down 2,195 ft.

HUDSPETH COUNTY

American Land Co.'s No. 1 Lockhart & Roseborough, C SE Sec. 5, School Blk. 21 ..... Total depth 260 ft.; shut down; tools moved off.

California Co.'s No. 1 University, 3,821 ft. N and 2,554 ft. E of SW cor. Sec. 19, Blk. E ..... Drlg. 514 ft., lime.

Western States Oil Co.'s No. 1 Moore, C SE Sec. 16, Blk. 71, Twp. 6, T.&P. Sur. ..... Straightreaming 2,700 ft.; total depth 2,865 ft.

Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW Sec. 12, Blk. 18 ..... Hole full water 2,945 ft.; underreaming 8¼-in. casing at 2,840 ft.; trying to get water shut off; shut down 3,140 ft.; trying to pull casing.

IRION COUNTY

Fuhrman Pet. Co.'s No. 1 J. O. Suggs, Lease 1, C SE Sec. 3,024, Blk. 24, H.&T.C. Sur. ..... Rig.

Fuhrman Pet. Co.'s No. 1 J. D. Suggs, Lease 2, C SW Sec. 3,009, Blk. 24, H.&T.C. Sur. ..... Location.

Fuhrman Pet. Co.'s No. 1 J. D. Suggs, Lease 3, C SE Sec. 3,009, Blk. 24, H.&T.C. Sur. ..... Drlg. 460 ft.

Kimbrough & Flinchbaugh's No. 1 Tankersley, 160 ft. S and 200 ft. W of NE cor. Sec. 712, Ford Willig Sur. ..... Spudding.

Kimbrough & Tuel's No. 1 J. M. Nutt, 1,920 ft. S, 200 ft. E of NW cor. Sec. 5, Gonzales Co. School Land ..... Set 6-in. casing 1,360 ft.; show oil and gas; shut down 1,400 ft.

Mertzon Interests' No. 1 Harlan Horney, 2,440 ft. N and 150 ft. from W lines of Sec. Z, Blk. 3, H.&T.C. Sur. ..... Shut down 1,226 ft.; bails 8 to 10 bbls. daily.

Signal Oil Co.'s No. 2 Suggs, 5,240 ft. from N line and 996 ft. from W line, Sec. 23, Blk. 27, H.&T.C. Sur. ..... Drlg. 605 ft.

Sun Oil Co.'s No. 1 Tankersley, 2,128 ft. N and 1,173 ft. E of SW cor. Sec. 8, G.C.&S.F. Sur. ..... Coring 1,135 ft.

F. E. Webb et al's No. 1 J. M. Nutt ..... Drlg. 3,175 ft.

Wesley West et al's No. 1 J. D. Suggs, SE NW SE Sec. 19, Blk. 7, H.&T.C. Sur. ..... Top pay 3,368 ft.; swabbed 35 bbls. oil and 40 bbls. water; 35.8 gravity oil; show oil 5,480-83 ft.; show oil 5,660-70 ft.; drlg. 5,800 ft.

JEFF DAVIS COUNTY

J. K. Hughes Dev. Co.'s No. 2 Means, 1,622 ft. N line, 600 ft W line Sec. 345, H.&T.C. Sur. ..... Show gas 3,271 ft., black lime; slight show gas; drlg. 3,840 ft.

JONES COUNTY

Anna Belle Oil Co.'s No. 1 Bickley, 330 ft. S and E of NW cor. SE NE Sec. 50, Blk. 18, T.&P. Sur. ..... Rig.

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Texas:
Wink

E. P. Campbell et al's No. 2-C Herndon, 330 ft. N and E of SW cor. NW Sec. 6, M.E.P.&P. Sur.—Drlg. 2,135 ft.
Cosden & Co.'s No. 1 Brown, 200 ft. N and 300 ft. W of SE cor. J. H. Grayson Sur.—Drlg. 1,810 ft.
Cosden & Herbert Oil Co.'s No. 1 Bickley, 320 ft. N and 319 ft. E of SW cor. S half NW Sec. 50, Blk. 18, T.&P. Sur.—Rig.
Cosden & Herbert Oil Co.'s No. 6 Bickley, 330 ft. S and 319 ft. E of NW cor. S half NW of Sec. 50, Blk. 18, T.&P. Sur.—Drlg. 1,485 ft.
Grisham & Hunter's No. 1 Tiner, 311 ft. N and 330 ft. W of SE cor. Gabriel Zumwalt Sur.—Drlg. 2,275 ft.
Marland Prod. Co.'s No. 7 Mason, 330 ft. S and 990 ft. W of NE cor. S half NE Sec. 18, Blk. 19, T.&P. Sur.—Run 10-in. 1,010 ft.
Mid-Sun Oil Corp.'s No. 1 George Hoehn, 660 ft. N and W of SE cor. SE 40 ac. of N 160 ac. of W 320 ac. of A. Crain Sur. A-162—Fishing 2,385 ft.
McClanahan et al's No. 1 Hall, 150 ft. N and E of SW cor. of Hall 220-acre tract, C.&M.R.R. Co. Sur.—Drlg. 1,350 ft.
McGinley Corp.'s No. 1 Whittemore, 660 ft. N and W of SE cor. SE NE Sec. 39, B.B.B.&C.—Shut down 225 ft.
McMan Oil & Gas Co.'s No. 2 Bickley, 330 ft. N and E of SW cor. of NE Sec. 50, Blk. 18, T.&P.R.R. Sur.—Location.
McNeeley et al's No. 1 Roscoe Bland, 1,175 ft. N and 240 ft. W of SE cor. Subdivision 20, A-164, DeWitt Co. School Land.—Spudded and shut down.
Phillips Pet. Co.'s No. 1 Winters, Sec. 19, Blk. 19, T.&?. Sur.—Cleaning out 2,900 ft.
Phillips Pet. Co.'s No. 6 Mason, 330 ft. S and 300 ft. W of NE cor. W half of NE Sec. 18, Blk. 19, T.&?. Sur.—Underreaming 8-in. 2,275 ft.
Roberts Oil Corp.'s No. 8 Grayson, 2,083 ft. N and 330 ft. W of SE cor. of their lease out of Sec. 13, Blk. 19, T.&P.—Drlg. 2,300 ft.
Roeser-Pendleton & Landreth Prod. Co.'s No. 4 Grayson-A, 315 ft. S and 990 ft. W of NE cor. their lease out of Sec. 13, Blk. 19, T.&P.R.R. Sur.—Drlg. 1,675 ft.
Sedwick O. & G. Co.'s No. 1 Routh, 1,250 ft. N, 2,500 ft. W SE cor. 299-acre tract, Austin & Williams Sur. 355-A-7.—Drlg. 750 ft.
Sedgwick Oil & Gas Co.'s No. 1 Brown, 660 ft. N and 1,320 ft. E of SW cor. Sec. 9, Blk. 1, T.&N.O. Sur.—Location.
Snowden & McSweeney's No. 6 Bickley, 330 ft. N and 319 ft. E of SW cor. N half Sec. 50, Blk. 18, T.&P. R.R. Sur.—Drlg. 1,450 ft.
U. L. Tomberlin's No. 1 Horn, 1,980 ft. N and 600 ft. E of SW cor. of 502 ac. of Penney Sur. A-283—Spudded and shut down.

LOVING COUNTY

Lockhart & Co.'s No. 1 Hazell, 2,792 ft. SW of NE line and 660 ft. NW of SE line Sec. 84, Blk. 33, H.&T.C.R.R. Sur.—Rigging up standard tools.
Lockhart & Co.'s No. 1 H. L. Lepp, 330 ft. each way from S cor. of Sec. 3, Blk. 2, W.&N.W. Sur.—Top salt 715 ft.; drlg. 3,725 ft.
Lockhart & Co.'s No. 1 Hubbard, 2,640 ft. NE and 660 ft. NW Sec. 84, Blk. 33, H.&T.C.R.R. Sur.—Cem. 10-in. casing 5,381 ft.
Lockhart & Co.'s No. 2 Hubbard, 1,660 ft. from NE line and 330 ft. from SE line of Sec. 83, Blk. 33, H.&T.C.R.R.—Cellar.

LYNN COUNTY

Miller et al's No. 1 May, 500 ft. N of C of S L of Sec. 10, Blk. 7, E.L.R.R. Sur.—Spudded and shut down.

MENARD COUNTY

Carpenter & Robbins' No. 1 Kothman, NW cor. SW SW Sec. 22—Shut down 600 ft.
C. C. Sorrels & Jackson's No. 1 F. Wilhelm, C NE Sec. 6, Blk. C. Brooks & Burleson Sur.—Drlg. 2,070 ft.

MIDLAND COUNTY

Shoup et al's No. 1 Roy Parks, C NW Sec. 34, Blk. 41, Twp. 2s, T.&?. Sur.—Top salt 1,700 ft.; cem. 8⅝-in. casing 2,770 ft.; show oil 3,330 ft.; top lime 4,744 ft.; shut down 4,980 ft.

MITCHELL COUNTY

California Co.'s No. 6 Foster, Lease 1, 990 ft. N and 2,310 ft. E of SW cor. Sec. 6, Blk. 29, Twp. 1s, T.&P. Sur.—Tested 35 bbls. 2,573-2,616 ft.; cleaning out 2,855 ft.
Magnolia Pet. Co.'s No. 6 Foster, 1,980 ft. N and E of SW cor. Sec. 17, Blk. 29, Twp. 1s, T.&P.R.R. Sur.—Shut down 912 ft.
Simms Pet. Co.'s No. 1 Elwood, C SE of Sec. 29, Blk. 18, S.P.R.R. Sur.—Rebuilding rig; 2,000,000 ft. gas.
Teas & Wheeler's No. 1 Radford, 1,320 ft. N and W of Sec. 1, Blk. 27, T.&P. Sur.—Four bailers salt water per hr. 3,105 ft.; drlg. 3,670 ft.

NOLAN COUNTY

L. G. Bradstreet et al's No. 1 Kuteman, C NW Sec. 95, Blk. X, T.&P. Sur.—Rig.
C. M. Root et al's No. 1 Simpson, 330 ft. S and W of NE cor. SE Sec. 33, Blk. 19, T.&P. Sur.—Drlg. 2,750 ft.
W. E. O. & R. Co.'s No. 1 Allyn, 600 ft. E and 1,720 ft. N of SW cor. Sec. 48, Blk. 20, T.&P. Sur.—Underreaming 6⅝-in. casing 2,740 ft.; drlg. 2,940 ft.; 5 bailers water per hr. 2,938 ft.

PECOS COUNTY

Alexander & Lyle's No. 1 Myrtle Sellman, C SW SE Sec. 20, Blk. Z, T.S.Ry. Sur.—Top salt 814 ft.; top lime 1,602 ft.; 3,400,000 ft. gas from 1,611-26 ft.; spraying very little oil; sulphur water 1,652 ft.; shut down 1,655 ft.
M. H. Black's No. 1 P.V.O. Co., 2,310 ft. from SE and 1,650 ft. from SW lines Sec. 22, Blk. 10, H.&G.N. Sur.—Location.
Buell & Hagan's No. 1 University-B, 330 ft. N and 2,310 ft. W of SE cor. Sec. 36, Blk. 18, University Land—Location.
California Co.'s No. 1 Smith, Lease 4, 1,010 ft. from N and E line Sec. 15, Blk. 194, G.C.&S.F. Sur.—Shut down 1,786 ft.
Crowley's No. 1 Heiner, 2,490 ft. each way from N and E lines Sec. 589, G.C.&S.F.R.R. Sur.—Spudding.
The California Co.'s No. 3 Smith, Lease 1, 1,789 ft. from N and 1,005 ft. from W lines, Sec. 21, Blk. 194, G.C.&S.F.R.R. Sur.—Set 6-in. casing 1,385 ft.
California Co.'s No. 7 Smith, Lease 1, 998 ft. from S and 1,738 ft. from W lines, Sec. 23, Blk. 194, G.C.&S.F.R.R. Sur.—Drlg. 1,445 ft.
M. C. Dibble & Hale's No. 1 Bonebrake, Sec. 115, Blk. 8, H.&G.W. Sur., elev. 2,555 ft.—Top lime 1,305 ft.; set 6-in. casing 1,610 ft.; pulling 8¼-in. casing; total depth 2,004 ft.
Ditto Oil Co.'s No. 1 J. M. Montgomery, Sec. 104, Blk. 331, A-16,387—Shut down 660 ft.
Doran & McGee's No. 1 P.V.O. Co., 150 ft. from SE and SW lines Sec. 22, Blk. 10, H.&G.N. Sur.—Location.
Grayburg Oil Co.'s No. 1 University, 990 ft. S and 330 ft. W of NE cor. Sec. 2, Blk. 17, University—Location.
Gulf Prod. Co.'s No. 16 Smith-B, 990 ft. S and 990 ft. E of NW cor. Sec. 22, Blk. 194, G.C.&S.F.R.R. Sur.—Rig.
Marland Prod. Co.'s No. 1 Blakeslee, 330 ft. N of middle of S line Sec. 100, Blk. 8, H.&G.N.—Drlg. 800 ft.
Matador Oil Co.'s No. 2 Smith, 2,310 ft. from N and 990 ft. from E lines, Sec. 24, Blk. 194, G.C.&S.F.R.R. Sur.—Moving in machine.
Mauch & Kroger's No. 1 Holmes, Sec. 5, Blk. 178, T.C. Sur.—Shut down 1,010 ft.
McCarty Oil Co.'s No. 1 A. A. Gray, 1,520 ft. from S and 150 ft. from W lines Sec. 591, Abst. 3,010—Drlg. 1,000 ft.
Mid-Kansas Oil & Gas Co.'s No. 5 Smith, 250 ft. S and 6,821 ft. E of NW cor. of Sec. 31, Blk. 194, G.C.&S.F. R.R. Sur.—Location.
Mid-Kansas Oil & Gas Co.'s No. 8 Yates-H, 797 ft. N and 3,528 ft. E of SW cor. Sec. 32, Blk. 194, G.C.&S.F. R.R. Sur.—Drlg. 755 ft.
Mid-Kansas Oil & Gas Co.'s No. 28 Yates, 811 ft. N and 871 ft. E of NW cor. Sec. 60, Blk. 1, I.&G.N. Sur.—Drlg. 870 ft.
Pecos Valley Oil Co.'s No. 2 fee, 1,620 ft. from SW and 1,320 ft. from NW Sec. 22, Blk. 10, H.&G.N.R.R. Sur.—Top salt 1,107 ft.; shut down 1,475 ft.
Perrin et al's No. 1 Eaton, 150 ft. each way from NE and NW lines Sec. 27, Blk. 3, H.&T.C. Sur.—Location.
Phillips Pet. Co.'s No. 1 J. L. Nutt, 2,310 ft. from W and 330 ft. from S lines Sec. 9, Blk. 125, T.&St.L. Sur.—Drlg. 2,505 ft.
Phillips Pet. Co.'s No. 1 Ramsey, 990 ft. from N and E lines, Sec. 17, Blk. 194, G.C.&S.F. Sur.—Drlg. 570 ft.
Stein & McGee's No. 1 Louis Paterson, 150 ft. SE of NW line, 150 ft. NE of SW Sec. 34, Blk. 10, H.&G.N.—Location.
B. J. Spikes' No. 1 George Brown—Shut down 700 ft.
Schumaker et al's No. 1 Williams et al, 330 ft. N of middle of S line Sec. 1, Blk. 117, G.C.&S.F.—Drlg. 556 ft.
Southern C. O. P. Co.'s No. 1 Scharbauer Cattle Co., SW cor. Sec. 21, Blk. 134, T.&S.L. Sur.—Show gas 1,455-60 ft.; water ... ft.; drlg. 3,576 ft.
Talbot & Dittman's No. 1 Unsicker, 1,320 ft. from E and 660 ft. from S lines, Sec. 25, Blk. 10, H.&G.N.—Shut down 1,365 ft.
Transcontinental Oil Co.'s No. 1 University, NE NW SW Sec. 18, Blk. 18—Top lime 1,155 ft.; drlg. 4,10...
Trees Oil Co.'s No. 1 Trees, 330 ft. from N and E L of Sec. 63, Blk. 8—Location.
World Oil Co.'s No. 1 Kloh, Sec. 47, Blk. 45, Twp. 8, T.P.R.R. Sur., elev. 2,810 ft.—Shut down 3,105 ft.

PRESIDIO COUNTY

Fastland Oil Co.'s No. 1 Smith, C Sec. 17, Certificate 463, or Blk. 351, G.C.&S.F.R.R.—Spudded and shut down.
Phillips Pet. Co., Empire G. & F. Co., Delmar Oil Co. and C. E. Miller's No. 1 Tootie Est., C NE Sec. 75, Blk. 3, D.&P.R.R. Sur.—Show wet gas 1,270 ft.; shut do... 2,200 ft.
L. C. Brite's No. 1 Lee, Sec. 50, Blk. 12, G.H.&S.A. Sur., center of section—Shut down 4,152 ft.; show oil ... ft.; set 6-in. casing 4,153 ... total depth 5,156 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 1-C University, 2,598 ft. S and 250 ft. W of NE cor. Sec. 1, Blk. 2, University Land—Rig (cable tools).
Big Lake Oil Co.'s No. 2-C University Land, 2,109 ft. N and 926 ft. W of SE cor. Sec. 1, Blk. 2, University Land—Rig.
Big Lake Oil Co.'s No. 159 University, 2,090 ft. N and 920 ft. W SE cor. Sec. 1, Blk. 2—Spud.
Big Lake Oil Co.'s No. 160 University, 1,320 ft. N and 1,060 ft. W of SE cor. Sec. 2, Blk. 2—Rig.
Big Lake Oil Co.'s No. 161 University, 1,720 ft. N and 1,720 ft. E of SW cor. Sec. 1, Blk. 2—Rig.
Big Lake Oil Co.'s No. 162 University, 920 ft. S and 1,720 ft. W of NE cor. Sec. 36, Blk. 1—Cellar.
Big Lake Oil Co.'s 163 University, 1,930 ft. S and 1,720 ft. W of NE cor. Sec. 1, Blk. 2—Rig.
Big Lake Oil Co.'s No. 164 University, 2,240 ft. N and 400 ft. E of SW Sec. 12, Blk. 2—Rig.
Big Lake Oil Co.'s No. 165 University, 2,240 ft. N and E of SW cor. Sec. 12, Blk. 2—Cellar.
Big Lake Oil Co.'s No. 166 University, 920 ft. S and 2,240 ft. E of NW cor. Sec. 12, Blk. 2—Location.
The California Co.'s No. 5 University, 2,310 ft. from N and E lines Sec. 16, Blk. 7, University Land—Top salt 1,280 ft.; drlg. 2,661 ...
R. V. Oberholtzer's No. 1 Talley, 1,650 ft. each way from S and W lines Sec. 6, T.C.&S.F.R.R. Sur.—Location.
Texon O. & L. Co.'s No. 1-B University Group 1—Top pay 6,250 ft.; hole full of oil; well made two small heads oil sand 8,482 ft.; total depth 8,525 ft.; flowing 1,930 bbls. daily.

REEVES COUNTY

Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft.—Total depth 2,900 ft.; shut dow...
Southern Crude O. P. Co.'s No. 1 Kloh-Rumsey, 2,310 ft. N and W SE cor. Sec. 23, Blk. 51—Ready to spud.
David R. Thompson's No. 1 A. A. Eddins—Fishing casing 5,658 ft.
Robert Penn et al's No. 1 Bowles, 2,310 ft. SW of NE cor. Sec. 36, Blk. 50, Twp. 8, T.&?.R.R. Sur.—Top salt 1,725 ft.; running 8-... casing 2,360 ft.
Lee O. White et al's No. 1 Kloh-Rumsey, 660 ft. S and E of NW cor. Sec. 5, Blk. 51, Twp. 10, T.&P. Sur.—Rigging up standard tools.

RUNNELS COUNTY

Boyce et al's No. 1 E. O. Lange, 2,300 ft. S and 6,900 ft. W of NE cor. Austin & Williams Sur. No. 263—Shut down 1,350 ft.
Foster et al's No. 1 Currie, 1,866 ft. SE of NW line, 335 ft. SW of NE L Gray Carroll Sur.—Shut down 360 ft.
R. D. Hamilton et al's No. 1 A. Spill, 1,320 ft. S and W of NE cor. A. Spill 891 acres, out of Thomas R. Webb Sur. 358—Shut down 100 ft.
Marland Prod. Co.'s No. 1 August Herring, 330 ft. S and 1,650 ft. W of NE cor. Sec. 39, E.T.R.R. Co. Sur.—Drlg. 330 ft.
McLean et al's No. 1 G. W. Clayton, 150 ft. N line, 270 ft. from W line Sec. 125, E.T.R.R.—Shut down 1,185 ft.
Nourse & Tilton's No. 1 R. A. Stokes, 200 ft. S 600 ft. E of NW cor. G.C.&S.F. Sur. No. 2—Drlg. 2,490 ft.
R. B. Summers et al's No. 1 J. W. Reese, M. J. Parramore Sur. 26—Shut down 1,650 ft.
Union Oil Co. of Nevada's No. 1 W. E. Allen, 1,000 ft. N and W of SE cor. Sec. 1, H.E.&W.T. Sur.—Drlg. 2,940 ft.

SCHLEICHER COUNTY

J. F. Long and O. C. Long's No. 1 W. H. Williams, NE cor. Sec. 28, H.E.&W.T.R.R. Sur.—Shut down 275 ft.

SCURRY COUNTY

I. B. Mims et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 2, H.&T.C. Sur.—Spudded and shut down.
G. E. Dieckman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur.—Shut down 1,810 ft.

STERLING COUNTY

F. & G. Oil Co.'s No. 1 W. L. Foster, C SE Sec. 20, Blk. 12, S.P.R.R. Sur.—Show oil 1,296-98 ft. and 1,356-... ft.; drlg. 2,010 ft.
George L. Miller's No. 1 Foster, 3,690 ft. S and 1,397 ft. W of NE cor. Sec. 4, Blk. 31, T.&P. Sur.—Bldg. rig.

SUTTON COUNTY

Phillips Pet. Co.'s No. 1 A. G. Holman, 2,310 ft. S and 330 ft. W NE cor. Sec. 25, G.C.S.D.&N.G.R.R. Sur.—Drlg. by tools 5,770 ft.
L. G. Priest's No. 1 Allison, 1,320 ft. N and E of SW cor. Sec. 52, Blk. A, T.&P.—Drlg. 300 ft.
Southern C. O. P. Co.'s No. 1 Allison, 2,310 ft. S and 320 ft. W of NE Sec. 41, Blk. K, G.H.&S.A. Sur.—Shut down 1,587 ft.

TAYLOR COUNTY

Grisham-Hunter Corp.'s No. 1 Campbell, 330 ft. S and E of NW cor. SW Sec. 65, Blk. 19, T.&?. Sur.—Shut down 1,400 ft.
Mid-Continent Oil & Gas Co.'s No. 1 Taylor, 990 ft. W 215 ft. N SE cor. 100-ac. tract, Sec. 18, Guadalupe School Land Sur.—300 ft. oil 2,384-87 ft.; 700 ft. oil 2,445-50 ft.; total depth 2,... ft.; swabbed 50 bbls. in 2 hrs. let stand 1 hr. and swabbed ... bbls.
Wentz Oil Corp.'s No. 1 Armour, 375 ft. N and 330 ft. W of SE cor. W half Sec. 16, Blk. 6, S.P.R.R. Sur.—Drlg. 650 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M.-K.-T.R.R. Sur.—Spudded and shut down.
Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Blk. D-7, E.L.&R.R. Sur.—Shut down 1,749 ft.
Mrs. J. B. McPhee's No. 1 Sam Belt, C Sec. 78, Blk. D-7, E.L.&R.R. Sur.—Location.
Milham Exploration Co.'s No. 1 Bassett, Sec. 76, Blk. Y, W. E. Robertson Sur.—Cem. 6⅝-in. casing 3,986 ft.; drlg 4,640 ft.
Woodley & Jones' No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&N.G.R.R. Sur.—Shut down 150 ft.

TERRY COUNTY

Kingsland O. & P. Co.'s No. 1 Brownfield, C NW SW SW Sec. 7, Blk. 1-A, E.L.R.R. Sur.—Fishing bailer 5,080 ft.

TOM GREEN COUNTY

Collins et al's No. 1 Jones, CSL Sec. 646, Shaffer Sur.—Shut down 1,800 ft.
Fitzgerald & Taliaferro's No. 1 Bennett, C SW Sec. 1,628, E. H. Ringer—Shut down 1,920 ft.
F. P. Green et al's No. 1 fee, 575 ft. from N and 1,450 ft. from W lines Sec. 165, District 11, S.P.R.R. Co. Sur.—Shut down 1,931 ft.
McLaughlin & Ridge's No. 1 R. Q. Holder, 3,140 ft. N and 80 ft. W SE cor. J. P. Parker Sur. (3,000-ft. test)—Show gas 1,757-59 ft.; shut down 3,005 ft.; hole full water 2,36... ft.

Williams et al's No. 1 Willeke, 2,500 ft. N and 75 ft. E of SW cor. Sec. 3, Deaf & Dumb Asylum Land ..... Location.

UPTON COUNTY

Dumplin Oil & Ref. Co.'s No. 4 J. F. Lane, 990 ft. from S, 330 ft. from W line of SE Sec. 2, G.C.&S.F. Sur. .. Top pay 1,940 ft.; pumping 40 bbls. oil and 470 bbls. water; shut down 1,979 ft.; to drill deeper.

Mentz Oil Co.'s No. 5 Shirk, 2,310 ft. N and 1,650 ft. W of SE cor. Sec. 35, Blk. 1, M.-K.-T.R.R. Sur. ..... Top salt 815 ft.; drlg. 1,020 ft.

YOAKUM COUNTY

Weekley Oil Corp.'s No. 1 Knight, C NW Sec. 791, Blk. D, John Gibson Sur. ..... Drlg. 369 ft.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Shut down 4,600 feet.

A. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Gas sand 2,491-2,520 ft.; tested 125,750 ft. gas; reset 8-in. 2,511 ft.; shut down 4,210 ft.

Producers Oil Co. et al's No. 1 Everett Bros., 2,310 ft. S and 330 ft. E of NW cor. Sec. 40, Blk. DB, C.C.S.D.&R.G.N.G. Sur. ..... Shut down 2,048 ft.

Bear Bros. et al's No. 1 Wilson, 6,830 ft. N NE cor. Sec. 1, T.&P. Sur., thence 1,680 ft. E Sec. 115, Blk. E, G.C.&S.F. Sur. ..... Show oil and gas 1,053 ft.; drlg. 2,700 ft.

Calvert Oil Corp.'s No. 1 Bassett, C NE Sur. 47, Blk. Y .. Set 15½-in. casing 767 ft.; set 10-in. casing 1,510 ft.; drlg. 3,285 ft.

WARD COUNTY

Gulf Prod. Co.'s No. 4 O'Brien et al, C NW SW Sec. 19, Blk. F, G.M.M.&M.A. Sur. ..... Location.

J. B. Lovelace et al's No. 1 Redman, 1,980 ft. NE of SW line and 1,980 ft. SE of NW line, Sec. 162, Blk. 34, H.&T.C.R.R. ..... Spudding and shut down; to resume work.

Hector Oil Co.'s No. 1 Johnson, 1,150 ft. NW, 5,160 ft. NE Sec. 10, Blk. 32, H.&T.C. ..... Top salt 745 ft.; total depth 2,551 ft.; set 6-in. casing 2,539 ft.; underreaming 2,543 ft.

WINKLER COUNTY

Amerada Pet. Corp.'s No. 3 Daugherty, NW cor. NE SE Sec. 3, Blk. 74 ..... Top lime 2,854 ft.; drlg. 3,135 ft., lime.

American Maracaibo Co.'s No. 2 Hendricks-B, 1,980 ft. N and 1,650 ft. E of SW cor. Sec. 28, Blk. B-5 ..... Bldg. rig.

Atlantic Prod. Co.'s No. 4 Hendricks, SW W half NE Sec. 44, Blk. 26 ..... Top lime 2,779 ft.; coring 2,845 ft., lime.

J. T. Bolin et al's No. 2 Brown, 2,000 ft. S and W of NE cor. Sec. 4, Blk. B-5, Public School Land ..... Shut down 210 ft. water.

Barnsdall Oil Corp.'s No. 1 Tobe Morton, 330 ft. N and E of SW cor. Sec. 26, Blk. B-12 ..... Oil show 3,070 ft.; set pipe 3,128 ft.; preparing to abandon 3,258 ft.

Barnsdall Oil Corp.'s No. 2 Tobe Morton, 1,650 ft. N and 330 ft. E of SW cor. Sec. 26, Blk. B-12 ..... Cem. 8¼-in. 2,758 ft.; top lime 2,571 ft.; rigging up standard tools.

Barnsdall Oil Corp.'s No. 3 Tobe Morton, 990 ft. N and 330 ft. E of SW cor. Sec. 26, Blk. B-12 ..... Cellar.

Empire Gas & Fuel Co.'s No. 3 Daugherty, 330 ft. N and 990 ft. E of SW cor. Sec. 3, Blk. 74 ..... Top lime 2,774 ft.; cem. 9-in. casing 2,781 ft.; set 6-in. casing 3,125 ft.; standardizing 3,140 ft.; total depth 3,195 ft.; plugging back to 3,190 ft.

Empire Gas & Fuel Co.'s No. 1-B Daugherty, 2,310 ft. S and 990 ft. W of NE cor. Sec. 3, Blk. 74 ..... Top lime 2,823 ft.; oil and gas show at 3,165 ft.; drlg. 3,378 ft.; flowing 15,000 bbls. daily.

Gulf Prod. Co.'s No. 3 Cowden, 1,310 ft. N, 330 ft. E of SW of their 240-ac. tract, Sec. 3, Blk. B-12 ..... Top salt 1,300 ft.; drlg. 2,737 ft.; flowed 135 bbls. 6 hrs.

Gulf Prod. Co.'s No. 4 Cowden, 495 ft. N and 330 ft. E of SW cor. of 240-ac. lease, Sec. 3, Blk. B-12 ..... Drlg. 1,215 ft.

Gulf Prod. Co.'s No. 2 Hendricks, 1,330 ft. N and 330 ft. W of SE cor. NW Sec. 44, Blk. 26, School Land .. Top lime 2,837 ft.; cem. 6⅝-in. casing 2,839 ft.

Humble Oil & Ref. Co.'s No. 4 Hendricks-C, 2,200 ft. N and 330 ft. E of SW cor. Sec. 10, Blk. B-12 ..... Top lime 2,490 ft.; cem. 6⅝-in. casing 2,505 ft.

Humble Oil & Ref. Co.'s No. 5 Hendricks-C, 2,200 ft. N and 2,310 ft. E of SW cor. Sec. 10, Blk. B-12 ..... Drlg. 2,515 ft.

Humble Oil & Ref. Co.'s No. 6 Hendricks-C, 1,320 ft. N and 2,310 ft. E of SW cor. Sec. 10, Blk. B-12 ..... Drlg. 2,370 ft.

Humble Oil & Ref. Co.'s No. 7 Hendricks-C, 440 ft. S and 990 ft. E of NW Sec. 10, Blk. B-12 ..... Cem. 10-in. 190 ft.; drlg. 1,689 ft.

Humble Oil & Ref. Co.'s No. 8 Hendricks-C, 440 ft. S and 1,650 ft. E of NW Sec. 10, Blk. B-12 ..... Drlg. 2,456 ft.

Humble O. & R. Co.'s No. 9 Hendricks-C, Lease No. 2, 1,320 ft. N and 330 ft. E of SW cor. Sec. 10, Blk. B-12 ..... Rigging up rotary.

Independent Oil & Gas Co.'s No. 3-B Hendricks, NW W half SE Sec. 44, Blk. 26 ..... Drlg. 1,673 ft., anhydrite.

Prairie Oil & Gas Co.'s No. 6 Cowden, 440 ft. N and 990 ft. E of SW cor. Sec. 3, Blk. B-12, School Land ..... Drlg. 1,320 ft., anhydrite.

Prairie Oil & Gas Co.'s No. 1 Scarborough, 990 ft. N and 1,650 ft. W of SE cor. Sec. 1, Blk. C-22 ..... Rigging up rotary.

Pure Oil Co.'s No. 1 Hendricks, NE SW Sec. 44, Blk. 26 .. Set 12½-in. casing 896 ft.; drlg. 2,290 ft.

Republic Prod. Co.'s No. 7-A Grisham-Hunter, 1,650 ft. N and E of SW cor. Sec. 45, Blk. 25, School Land .. Drlg. 1,800 ft.

Shell Pet. Co.'s No. 5 Scarborough, 330 ft. N and 990 ft. E of SW cor. Sec. 3, Blk. C-22 ..... Rigging up standard tools.

Skelly Oil Co.'s No. 1 Leck, 440 ft. N and 330 ft. E of SW cor. Sec. 22, Blk. 26, School Land ..... Drlg. 720 ft.

Skelly Oil Co.'s No. 1 Morton, 2,310 ft. N and 165 ft. W of SE cor. Sec. 27, Blk. B-12, School Land Sur. ..... Cellar.

Skelly Oil Co.'s No. 2 Hendricks-C, 1,320 ft. N and 2,310 ft. W of SE cor. Sec. 10, Blk. B-12 ..... Rigging up rotary.

Simms Oil Co. and Southwest O. P. Co.'s No. 1 George Sealey, 2,434 ft. S and 330 ft. W of NE cor. Sec. 50, Blk. F ..... Top lime 2,676 ft.; total depth 2,845 ft.; oil show 2,845 ft.

Southern Crude O. P. Co.'s No. 6 Hendricks T-67-3-A, 990 ft. S and 1,650 ft. W of NE cor. Sec. 4, Blk. B-12 ..... Rigging up rotary.

Southern Crude O. P. Co.'s No. 5 Hendricks T-67-F, 330 ft. N and 990 ft. W of SE cor. Sec. 33, Blk. B-5, School Land ..... Drlg. 531 ft.

Simms Pet. Co. et al's No. 2 Sealey, 2,434 ft. S and 990 ft. W of NE cor. Sec. 50, G.M.M.&A. Sur. ..... Rotary rig.

Southern C. O. P. Co. and Westbrook Thompson's No. 4 Hendricks T-88-B, 330 ft. S and 1,330 ft. E NW cor. Sec. 4, Blk. B-12, Public School Land ..... Top lime 2,721 ft.; total depth 2,842 ft.

Southern Crude O. P. Co.'s No. 2 Hendricks T-88-Q, 440 ft. S and 330 ft. E of NW Sec. 27, Blk. 26, School Land ..... Drlg. 1,130 ft.

Southern Crude O. P. Co.'s No. 1 Hendricks, T-88-CX, 440 ft. N and 330 ft. W of SE cor. Sec. 21, Blk. 26, School Land ..... Cem. 12½-in. casing 780 ft.

Southern Crude O. P. Co.'s No. 7 Hendricks T-88-H, 2,310 ft. N and 990 ft. E of SW Sec. 28, Blk. B-5, School Land ..... Location.

Southern C. O. P. Co.'s No. 6 Hendricks T-88-D, 440 ft. N and 1,320 ft. W of SE cor. Sec. 4, Blk. B-12 ..... Drlg. 2,170 ft.

Southern C. O. P. Co.'s No. 3 Hendricks T-89-J, 2,200 ft. N and 330 ft. W of SE cor. Sec. 9, Blk. B-12, School Land ..... Drlg. 1,358 ft., anhydrite.

Texas Canadian Oil Co.'s No. 1 Kloh-Rumsey, 1,320 ft. N and E of SW cor. Sec. 35, Blk. 46, T.&P.R.R. Sur.. Spudded and shut down 225 ft.

Texas Oil & Land Co.'s No. 6 Grisham & Hunter-B, 1,320 ft. N and 990 ft. E of SW cor. Sec. 45, Blk. 26.. Drlg. 1,215 ft.

Warner-Quinlan Co.'s No. 1 Daugherty, 2,310 ft. S and E of NW cor. Sec. 3, Blk. 74, Public School Land ... Estimated 60 bbls. per hour and 70,000,000 ft. gas; shut down 3,105 ft.; show gas 2,998 ft.; tested 175 bbls. per hour on second test.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 39)

CASTRO COUNTY

Colorado O. & R. Co.'s No. 1 M. Slemmons, SW cor. Sec. 73, Blk. M-17, B.S.&F. Sur. ..... Rig blown down.

Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE, Sec. 333, Blk. M-6, S.K.&K. Sur. ..... S.D. 510 ft. for cag.

CHILDRESS COUNTY

C. L. Soane et al's No. 1 B. P. Smith, Sur. 49, F. P. Knott lands ..... Drlg. 4,142 ft. in sidetracked hole.

The Texas Co.'s No. 1 Smith, 100 ft. each way from NW cor. Sec. 174, Blk. H, W.&N.W. Sur. ..... Hole full sulphur wtr. 3,985 ft.; S.D. 4,605 ft.

COCHRAN COUNTY

V. T. Bolin et al's No. 1 C. C. Slaughter, 1,650 ft. E and 660 ft. S. of NW tract, League 118, Knox County School land ..... Rig and S.D.

COTTLE COUNTY

Explin. Co.'s No. 1 Richards ..... Drlg. 2,765 ft.

Explin. Co.'s No. 4 Matador Land & Cattle Co., C, Sec. 46, J. H. Stephens Sur. ..... Fishing 3,217 ft.

Sun Oil Co.'s No. 1 T. B. Yarborough, 485 ft. S and 2,460 ft. E NW cor. Sec. 551, Block H, W.&N.W. Sur.. S. D. 3,497 ft.

DONLEY COUNTY

Beaudoin et al's No. 1 Ball, 1,075 ft. from N line and 985 ft. from E line, Sec. 22, Blk. E, D.&P.R.R. Sur. ..... Location.

Marine Oil Co.'s No. 1 Sawyer C SW, Sec. 5, Blk. G, G.C.&S.F. Sur. ..... Location.

GRAY COUNTY

Anderson et al's No. 1 Heitholt, C NE SW, Sec. 152, Blk. 3, I.&G.N. Sur. ..... Spud.

B. S. Arnold's No. 1 J. E. Mingale, C E 160 ac., Sec. 212, Blk. B-2, H.&G.N. Sur. ..... S.D. 1,412 ft.

Arnold & Howell's No. 1 Turnex, C SW, Sec. 111, Blk. B-2 ..... S.D. 2,224 ft. for pipe.

Barnsdall Oil Corp.'s No. 1 M. B. Davis, NW cor. W½ SE, Sec. 9, Blk. 1, A.C.H.&B. Sur. ..... S. D. 570 ft.

Camel Oil Co.'s No. 1 Harrah-B, 330 ft. each way from NW cor. NE, Sec. 150, Blk. 3, I.&G.N. Sur. ..... Cellar.

Crabtree Drlg. Co.'s No. 1 B. F. Talley, SW NE, Sec. 114, Blk. M-2, B.S.&F. Sur. ..... S.O. 2,400 ft.; S.D. 2,735 ft.

Cockrell-McElroy et als' No. 1 McConnell, 330 ft. each way from NE cor. W½ SW, Sec. 174, Blk. 3, I.&G. N.R.R. Sur. ..... Location.

Constantine et al's No. 1 Dial, 330 ft. S and E of NW cor. W½ NW, Sec. 32, Blk. 25, H.&G.N. Sur. ..... Drlg. 2,415 ft.

Danciger et al's No. 1 Shaw, 1,000 ft. N and 330 ft. W SE cor. SW, Sec. 5, Blk. 1, A.C.H.&B. Sur. ..... 35,000,000 ft. gas 2,290 ft.; show oil 2,610-13 ft.; S. D. 2,645 ft.

Danciger et al's No. 1 J. E. Williams, 330 ft. each way from NE cor. NW SW, Sec. 6, Blk. 1, A.C.H.&B. Sur. Drlg. 2,010 ft.

Danciger et al's No. 1 Sheridan, SE cor. Sec. 184, Blk. B-2, H.&G.N.R.R. Sur. ..... Location.

Delmar Oil Co.'s No. 1 Chapman, 330 ft. each way from SE cor. NW, Sec. 10, Blk. 26, H.&G.N. Sur. ..... Drlg. 2,685 ft.

Empire G. & F. Co.'s No. 1 A. R. Clay, NE cor. Sec. 185, Blk. B-2 ..... Drlg. 2,527 ft.

Eslick & McKinney's No. 1 Mrs. Hopkins, 330 ft. from NE, E½ NE, Sec. 84, Blk. B-2, H.&G.N. Sur. ..... S.D. 2,865 ft.

Sines & Reiger's, formerly Eslick et al's No. 1 Mrs. J. A. Hopkins, NW cor. W 80 ac. of SW, Sec. 84, Blk. B-2, H.&T.C. Sur. ..... Pull 6-in. cag. 3,206 ft.

Gulf Prod. Co.'s No. 4 Holmes-A, 990 ft. N and 330 ft. E of SW cor. W½ SE, Sec. 87, Blk. 3, I.&G.N. R.R. Sur. ..... Drlg. 3,307 ft.

Gardner, Collins et al's No. 1 Saunders, 330 ft. each way from NE cor. of S 49 ac. of W 100 ac., Sec. 3, B.&B. Sur. ..... 10,100,000 ft. gas 2,526-46 ft.; drlg. 2,390 ft.

Gardner Bros. & Collins' No. 2 Saunders, 350 ft. from N on center line of W 68 of W ½ of E ½ of J. G. Eustis Sur. ..... Location.

Magnolia Pet. Co.'s No. 3 W. Harrah, 330 ft. from NE cor. NW, Sec. 150, Blk. 3, I.&G.N. Sur. ..... S. D. 3,165 ft.

Magnolia Pet. Co.'s No. 1 Gething, 530 ft. each way from SE SW, Sec. 14, Blk. A-9, H.&G.N. Sur. ... Fishing 2,365 ft.

Malone et al's No. 1 Taylor, 990 ft. S and E of NW cor. NW, Sec. 22, Blk. B-2, H.&G.N. Sur. ..... Drlg. 2,630 ft.

Marland Prod. Co.'s No. 1 Brown-Finley, 330 ft. S and W of NE cor. Sec. 32, Blk. B-2, H.&G.N.R.R. Sur. .. Struck 35,000,000 ft. gas 2,770 ft., rig burned.

McLain Oil Co.'s No. 1 Back, 1,000 ft. from W line and 330 ft. from N line, NW, Sec. 24, Blk. 25 H.&G.N. Sur. ..... Spud. and S.D.

Midwest O. & G. Co.'s No. 1 Bower-B, 1,650 ft. from E and 330 ft. from N lines, Sec. 93, Blk. B-2, H.&G.N. R.R. Sur. ..... Drlg. 975 ft.

Nabob Oil Co.'s No. 2 Morse, 660 ft. from W line and 330 ft. from S line SW, Sec. 67, Blk. 25, H.&G.N. R.R. Sur. ..... Cellar.

Operators Oil Co.'s No. 3 Jackson, 330 ft. S and 990 ft. E of NW cor. N½ of NE, Sec. 88, Blk. B-2, H.&G.N. R.R. Sur. ..... Drlg. 2,000 ft.

Parton & Holt's No. 1 Gething, 330 ft. each way from SE cor. NE, Sec. 14, Blk. A-9 ..... S.D. 2,808 ft.

Phillips Pet. Co.'s No. 5 Johns, 330 ft. N and 990 ft. E of SW cor. SW, Sec. 87, Blk. 3, I.&G.N. Sur. ... Rig.

Prairie O. & G. Co.'s No. 2 Reynolds, 330 ft. each way from NW cor. SE, Sec. 61, Blk. 3, I.&G.N. Sur. .. Swabbed 40 bbls. daily from G.W. 3,094-3,101 ft., to drill deeper.

Purple Sage Oil Co.'s No. 2 E. B. Johnson ..... 2,000,000 ft. gas; 200 ft. oil 2,870 ft.; shot with 510 qts. 2,775-2,872 ft.; 400 ft. oil; C.O. 2,875 ft., to pump.

Republic Prod. Co.'s No. 1 G. H. Saunders, 330 ft. each way from SW cor. E½ NW cor. Sec. 4, Blk. 1, A.C.H.&B. Sur. ..... Drlg. in sidetracked hole 2,400 ft.

Schwald et al's No. 1 fee, 330 ft. each way from NE cor. E½ SW, Sec. 1, Blk. 1, A.C.H.&B. Sur. ..... Drlg. 2,570 ft.

Skelly Oil Co.'s No. 1 Saunders, 330 ft. from E line, 990 ft. from S line, SW, Sec. 4, Blk. 1, A.C.H.&B. Sur. .. Drlg. 2,569 ft.

St. Clair Oil Co.'s No. 1 Dial, 330 ft. S and W of NE cor. of SE Sec. 10, Blk. 25, H.&G.N.R.R. Sur. ..... Cellar.

St. Clair Oil Co.'s No. 1 Rowe, Sec. 22, Blk. R ..... S.D. 2,665 ft.

St. Clair Oil Co.'s No. 1 L. S. Stockton, SE cor., Sec. 35, W. R. Lee Sur. ..... Spudded and S.D.

Southern Pet. Exp. Co.'s No. 2 McConnell, 990 ft. from W line and 330 ft. from S line NW, Sec. 174, Blk. 3, I.&G.N. Sur. ..... Flowing 500 bbls. daily from sandy lime 3,207-21; T.D. 3,224 ft.

Southern Pet. Exp. Co.'s No. 3 McConnell, 1,650 ft. from W line and 330 ft. from S line NW, Sec. 174, Blk. 3, I.&G.N.R.R. Sur. ..... Location.

The Texas Co.'s No. 6 Davis, 330 ft. S and 1,650 ft. W of NE cor. of NW, Sec. 86, Blk. 3, I.&G.N.R.R. Sur. . Location.

The Texas Co.'s No. 5 A. Chapman, 1,138 ft. from W and 330 ft. from S lines, SE, Sec. 51, Blk. 25, H. &G.N. Sur. ..... Drlg. 2,145 ft.

The Texas Co.'s No. 5 Davis, 330 ft. S and W of NE cor. NW, Sec. 86, Blk. 3, I.&G.N. Sur. ..... Swb. 45 bbls. 17 hrs., G.W. 3,150-55 ft., drlg. 3,207 ft.

The Texas Co.'s No. 2 McLarty-B, at center of J. M. Rose Sur. ..... Rig.

The Texas Co.'s No. 10 Saunders, 330 ft. N and W of SE cor. of W½ of J. G. Eustis Sur. ..... Rig.

Travis et als' No. 2 Back, 330 ft. each way from NW cor. E½ SE cor. Sec. 44, Blk. 25, H.&G.N.R.R. Sur. Location.

Travis et al's No. 1 J. S. Morse, SE NW SW, Sec. 68, Blk. 25, H.&G.N. Sur. ..... 30,000,000 ft. gas 2,592-2,610 ft.; light spray oil 2,740-45 ft.; to deepen.

Wilcox-Pampa Oil Co.'s No. 31 Worley Reynolds, 330 ft. N and E SW cor. SE SW, Sec. 61, Blk. 3, I.&G.N... Rebuilding rig 2,910 ft.

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HOCKLEY COUNTY

World Oil Co.'s No. 1 Ellwood, 320 ft. from N and W lines, League 7, Wilbarger County school lands; elevation 3,363 ft.; contract depth 5,000 ft. ..... S.D. 1,455 ft.

HARTLEY COUNTY

Amarillo Oil Co.'s No. 9 Lee Bivins "A," C NW, Sec. 6, Blk. 21 ..... 15,000,000 ft. gas 3,300-35 ft.; 3,601 ft.; deepen.

Canadian River Gas Co.'s No. 10 Burns-A, 660 ft. N and 660 ft. E. Sec. 18, Blk. 2, G.&M. Sur. ..... Rig.

HUTCHINSON COUNTY

Antelope Creek Oil Co.'s No. 3 Sanford, 330 ft. from N line and 330 ft. from W line of E½ S 160 ac. of Sec. 82, Blk. 46, H.&T.C. Sur. ..... Drlg. 2,920 ft.

Dunnigan et al's No. 1 C. W. Hugenbyhl, 330 ft. from S line and 330 ft. from E line, N½, Sec. 4, Blk. T, W.N.G.R.R. Sur. ..... Drlg. 2,650 ft.

Marland Prod. Co.'s No. 1 Johnson-C, 450 ft. S and W of NE cor. Sec. 5, Blk. 1, B.&B. Sur. ..... Spud. and S.D.

Oil Operators Trust Co. and Marland's No. 2 J. M. Stanford B, Sec. 82, Blk. 46, H.&T.C. Sur. ..... S.D. 3,039 ft.

Phillips Pet. Co.'s No. 2 Jasper, 980 ft. from S line and 660 ft. from E line SE, Sec. 23, Blk. M-23, T.C. R.R. Sur. ..... Fishing 510 ft.

Phillips Pet. Co.'s No. 4 Johnson Bros.-Florence, 330 ft. N and E of SW cor. E½, Mary Whitely Sur. ..... Set 6-in. 2,776 ft.

Phillips Pet Co.'s No. 3 Johnson-Pulaski, 330 ft. N and W of SE cor. W½, Mary Whitely Sur. ..... Swb. 15 bbls. daily 2,840-4[illegible] shot with 80 qts., C. O.

Phillips Pet. Co.'s No. 5 Johnson-Barnum, 990 ft. N and 330 ft. W SE cor. E 80 ac. of S 160 ac. of N 400 ac., Sec. 64, Blk. 46, H.&T.C.R.R. Sur. ..... Drlg. 2,590 ft.

Phillips Pet. Co.'s No. 3 Sanford-Garland, 330 ft. N and E of SW cor. Sec. 77, Blk. 46, H.&T.C. Sur. ..... Drlg. 860 ft.

Phillips Pet. Co.'s No. 15 Whittenburg, Sec. 63, Blk. 46, H.&T.C. Sur. ..... Drlg. 2,610 ft.

Phillips Pet. Co.'s No. 16 Whittenburg, Sec. 63, Blk. 46, H.&T.C. Sur. ..... Rig.

The Texas Corp.'s No. 2 Moore, 990 ft. fromN line and 330 ft. from W line SW Sec. 125, Blk. 4, I.&G.N. Sur. **Location.**

Timms et al's No. 1 Moore, 330 ft. N and E of SW cor. S 40 ac. of NW, Sec. 21, Blk. M-21, T.C.R.R. Sur. Spud and S.D.

KING COUNTY

The Texas Co.'s No. 1 J. H. Johnson ..... S.D. 4,300 ft.

Huff Oil Co.'s No. 1 Martin, 1,320 ft. from N line and 1,320 ft. from E line Sec. 171, Blk. F, H.&T.C. Sur. Rig.

LAMB COUNTY

Dan Freel et al's No. 1 Ellwood, CWL, Sec. 9, Blk. T. T. A. Thompson Sur. ..... Spudded and S.D.

LIPSCOMB COUNTY

Brown et al's No. 1 Box T Ranch, SW NE Sec. 612, H.&T.C. Sur. ..... S.D. 3,128 ft.

Ruby Oil Co.'s No. 1 C. W. Jones, NE SW, Sec. 100 H.&T.C. Sur. ..... S.D. 4,433 ft. for 5-in. csg.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ..... Small show oil 1,133-40 ft.; S.D. 4,000 ft.

MOORE COUNTY

Amarillo Oil Co.'s No. 2 Warrick-A, center S 160 acres Sec. 92, Blk. 46, H.&T.C. Sur. ..... Location.

Canadian Gas Co.'s No. 1 Kilgore-A, 2,716 ft. S and 2,695 ft. W of NE cor. Sec. 1, Eustis Sur. ..... S.D. 1,000 ft.

Devonian Oil Co.'s No. 1 Sneed, 330 ft. N and 2,335 ft. W of SE cor. of S 160 ac. of N 320 ac., M. Robinson Sur. ..... Rig.

Dixie Creek Oil Co.'s No. 1-A Sneed, Jr., 330 ft. N and W of SE cor. E½, Sec. 65, Blk. 3, G.M. Sur. ..... 400 ft. oil 3,305-15 ft., H.P.W. 3,330 ft., P.B. to 3,316 ft. with 30 qts. 3,241-68 ft. and qts. 3,283-3,316 ft., C. O.

Dixie Creek Oil Co.'s No. 4-A Sneed, Jr., 330 ft. S and W of NE cor. E½, Sec. 65, Blk. 3 ..... 10,000,000 ft. gas 2,835-55 ft. ft. oil 3,304-05 ft.; H.P.W. 354 ft; P.B. to 3,336 ft. with 55 qts. 3,305-25 ft. second shot 3,217-38 ft; C[illegible]

Fritch O. & G. Co.'s No. 1 Lee Burns, C NE 40 ac. of N 160 ac., Sec. 4, Geo. Mahan Sur. ..... Spudded and S.D.

McMan Oil & Gas Co.'s No. 2 Sneed, 2,260 ft. S and 990 ft. W of NW cor. J. W. Proctor Sur., located in M. Robinson Sur. ..... Drlg. 1,262 ft.

Skelly Oil Co.'s No. 6 Armstrong & Byrd, 1,600 ft. S and 990 ft. E NW cor. of J. N. Proctor Sur. ..... Location.

Skelly Oil Co.'s No. 7 Armstrong & Byrd, 2,260 ft. S and 990 ft. E NW cor. J. N. Proctor Sur. ..... Location.

Phillips Pet. Co.'s No. 1 Burnett, 330 ft. each way from NE cor. NE, Sec. 192, Blk. 3-T, T.&N.O. Sur. ..... Set 8-in. 2,644 ft.

Phillips Pet. Co.'s No. 4 Sneed, 1,600 ft. S and 990 ft. W of NW cor. J. W. Proctor Sur.; located in M. Robinson Sur. ..... Drlg. 1,260 ft.

Phillips Pet. Co.'s No. 1 Taylor, 330 ft. N and E of SW cor. of E½ of NW cor. Sec. 244, Blk. 3-T, T. &N.O. Sur. ..... Building rig.

MOTLEY COUNTY

Explin. Co.'s No. 1 Tillson ..... Drlg. 2,670 ft.

Explin. Co.'s No. 2 Matador Land & Cattle Co., C SW, Sec. 37, John Gibson Sur. ..... S.D. 4,700 ft.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Ledrick, Sec. 7, Blk. 5-A ..... Formerly abd. at 5,240 ft.; [illegible] show 36 gravity oil 5,261-[illegible] show oil brown sand 5,[illegible] ft.; set whipstock to drill [illegible] tools 5,827 ft.

WHEELER COUNTY

Angus et al's No. 2 Morgan, C E½ NW NE, Sec. 93, Blk. 17, H.&G.N. Sur. ..... S.D. 1,175 ft. for pipe.

Arnold Oil Co. et al's No. 1 Ritchey, 420 ft. from E and 460 ft. from S lines of NW cor. Sec. 5, Blk. 24, H.&G.N. Sur. ..... S.D. 1,530 ft.

Byrens et al's No. 1 Johnson, SW cor. NE, Sec. 88, Blk. A-5, H.&G.N. Sur. ..... S.D. 2,800 ft.

Clark et als' No. 4 Purcell, C SW of SW Sec. 51, Blk. 17, H.&G.N.R.R. Sur. ..... Rig.

Edwards et al's No. 2 Trostle, C NW of NW Sec. 130, Blk. 23, H.&G.N. Sur. ..... Rig burned 1,235 ft.

Fain-McGaha and Humble's No. 1 Noel, 330 ft. each way from NE cor. S½ SE, Sec. 54, Blk. 24, H.& G.N. Sur. ..... Fishing 210 ft.

Gibson Oil Co.'s No. 6 Bentley, 330 ft. S and E of NW cor. SE of SE Sec. 42, Blk. 24, H.&G.N.R.R. Sur. ..... S.D. 225 ft.

Hartell et al's No. 1 Burchman, C NW SE, Sec. 91, Blk. 17, H.&G.N. Sur. ..... S.D. 1,820 ft.

Johnson & Co.'s No. 1 Purcell, 430 ft. from N line and 570 ft. from W line NE, Sec. 50, Blk. 17, H.&G.N. Sur. Run 8-in. 1,210 ft.

Lone Star Co.'s No. 1 Hicks, C SW NE, Sec. 52, Blk. 17, H.&G.N. Sur. ..... Rig.

Lone Star Gas Co.'s No. 3 Jones, C NW NE, Sec. 1, Blk. 25, H.&G.N. Sur. ..... S.D. 1,816 ft.

Lone Star Gas Co.'s No. 4 Jones, center of SE of NE Sec. 1, Blk. 24, H.&G.N. Sur. ..... Rig.

Mudge Oil Co.'s No. 1 Hicks, C SW of SW Sec. 52, Blk. 17, H.&G.N.R.R. Sur. ..... Drlg. 185 ft.

L. W. Rook's No. 1 M. Nelson, C SW NE, Sec. 5, Blk. 24, H.&G.N. Sur. ..... Drlg. 2,000 ft.

The Texas Co.'s No. 1 Gordon, 330 ft. N and 405 ft. W of SE cor. of NW Sec. 91, Blk. 17, H.&G.N.R.R. Sur. Drlg. 1,305 ft.

J. D. Whittington et al's No. 3 Williams-Laycock, 330 ft. N and E of SW cor. SW, Sec. 9, Blk. 27, H. &G.N.R.R. Sur. ..... S.D. 1,990 ft.

L. W. Rook's No. 2 A. Smock, C SW SE, Sec. 5, Blk. 24, H.&G.N. Sur. ..... Rig.

Vaughn et al's No. 1 Woodley, C NE of NE Sec. 21, Blk. 24, H.&G.N. Sur. ..... Rig.

Wisch Kamper's No. 1 Adamson, C NE SE, Sec. 50, Blk. 17, H.&G.N.R.R. Sur. ..... Spud. and S.D.

Wisch Kamper's No. 1 Parsons, C NW NW, Sec. 53, Blk. 23, H. & G. N. Sur. ..... C.O. 1,950 ft.

Upham Gas Co.'s No. 1 Raybo, C S½ NW NW, Sec. 105, Blk. 23, H.&G.N. Sur. ..... Rig.

CENTRAL WEST FIELDS

(Continued from Page 62)

tract calls for a depth of 1,500 feet. Another test is under way on the Herrick farm, and a derrick for a test on the Nyberg farm is completed and drilling tools expected to be on the ground at any time to start spudding. A well is also starting on the Mrs. Brown farm, about 2 miles east of the town of Eldorado. Operators from Owensboro and other parts of western Kentucky have secured large blocks to develop in Saline County, as well as operators from other areas of the country and it looks as though the coming spring will see a lot of work in the Harrisburg area. Edward R. List, of Listville, Fla., will start testing some of his acreage in the county as soon as weather permits. Saline County is on almost a direct west line from the Tri-County Field of Kentucky. L. C. Young of Lexington, Ky., and James C. Ellis, of Owensboro, expect to start developments near Harrisburg as soon as weather clears.

In western Illinois, the Ohio Oil Co.'s test on the Martha E. Thomas farm, in SE Section 3, Sugar Loaf Township, St. Clair County, had only a slight indication of oil in a sand from 738 to 800 feet and was abandoned as a dry hole.

In Dennison Township, Lawrence County, Phipps, Blosser and others drilled their No. 1 on the J. J. DesBaeuf farm, Section 7, 200 feet below the Kirkwood sand, but failed to find a commercial producer and it has been called a dry hole. The Ohio Oil Co.'s No. 13 well, 300 feet from the north line and 400 feet from the west line of the George Gray No. 2 farm, in the NE Section 26, was a duster at 1,714 feet. In Martin Township, Crawford County, the Ohio Oil Co.'s No. 6 well, 660 feet from the north and east lines of the Thomas farm, in the NE SW Section 34, was a small producer around 2 bbls.

In Casey Township, Clark County, Bohannon and others' test in the northeast corner of the M. Miller farm, in the NE Section 6, was a dry hole at 600 feet, being in shallow territory.

In Centralia Township, Marion County, the Webster Drilling Co. abandoned No. 1 on the Bronson Talbot, in the NW Section 30.

KENTUCKY-TENNESSEE

(Continued from Page 58)

Co.'s No. 6 C. D. Westerfield farm, drilled in a duster at 608 feet. D. T. Bolling and others got another duster on the James Dickens 80 acres, in the Whittaker Pool.

The Wood Oil Co., Inc.'s No. 9 on the J. W. Mattox farm, near Reynolds Switch, in the Friendship Chapel area of the county, is estimated good for 15 bbls.

Daviess County Wells

In the Owensboro district, of Daviess County, the Pops Development Co.'s No. 4 on the Marion Taylor 45 acres, in the Burton Pool, is estimated at 30 bbls., initially.

The Jetsan Oil Co.'s No. 2 on the S. Hinton farm, in the Jones Pool, southwest of Whitesville, is rated as a 40-bbl. initial producer from the Jones sand.

Imperial Oil & Gas Products Co.'s No. 6 on the Jimmie Hayden farm, in the Jones Pool, is reported at 15 bbls. initially.

In the Pellville area, Bert Thompson and Tremor's No. 1 on the J. A. Coomes 31 acres, reported at 20 bbls. initially, close to the Roby Pool.

Bowling Green Field

About 7 miles west of Bowling Green, in Warren County, William Gettings drilled No. 6 on the Tom McGinnis farm, getting a 1-bbl. pumper at 1,260 feet in the deep sand.

Drilling on the 2,600-acre block of leases just west of Owensboro, in Daviess County, has been started by the Sidney Petroleum Corp., more particularly for gas. The first well by this company is on the Rogers and Church farm, better known as the Ferns Hill Coal farm, and is down several hundred feet. It will require deeper drilling, at least that is the supposition. The second rig is being set up and on what is known as the Booth lease, a short distance northeast of the first location. A third test is reported to be due in on the big acreage block as soon as arrangement can be made with contractors.

Petroleum Exploration Co. has what shows for a fairly good well in a second attempt on the C. M. Barnett farm, in the Jones Pool, of Daviess County. Huff and Calderwood have a nice showing in the Jett sand in Nos. 3, 4 and 5 on the Mrs. Bell Salmon farm, east of the Burton Pool, same county, although they may be drilled down to the next sand and if dry in the lower sand will be plugged back to the Jett sand and given shots.

The Eastern Gulf Oil Co. has No. 7 on the Murray farm, in the Red Hill area of Daviess County, in the sand and makes a fairly good showing.

Maxey, Lewis and others are installing a 20-horsepower engine to the Whittaker lease south of Whitesville, where five wells are now pumping.

McClintock & Reed, Kentucky operators, both in the central and eastern portion, have entered the western division, and unloaded a new rig at Cloverport and are moving on the Parsons farm in the Duke section of Hancock County. This lease is one-half mile from the Drake well on the Huff farm.

D. J. White and others have started drilling on the Howard farm, 2 miles south and east of Oklahoma, near Whitesville.

EASTERN FIELDS

(Continued from Page 58)

The Butchers Oil Co. has the rig completed for a test on the Harry Yonkins farm.

In Pine Township, Allegheny County, the Duff City Gas Co. has a duster at a second test on the Joseph Booker farm. In Finley Township, E. L. Oles is fishing at 600 feet on the James Coventry farm. In Robinson Township, the Elizabeth Oil Co. has a duster on the P. and K. Petrie farm. The Lorish Oil & Gas Co. is due in the sand on the C. F. Lorish farm.

Greene County

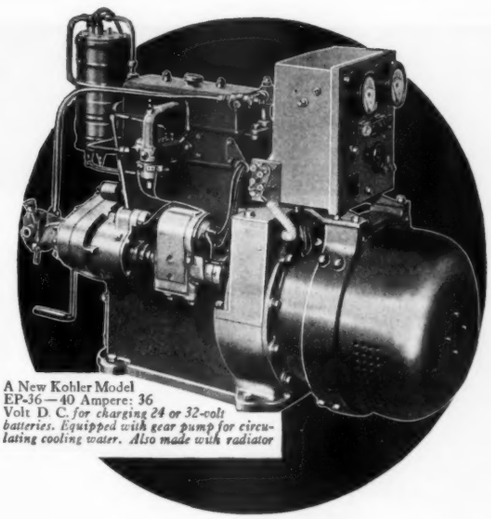
In Springhill Township, Greene County, the Manufacturers Light & Heat Co. has a Gordon sand gasser on the Joseph and M. C. Gilmore farm. In Morris Township, Nuss & McClay's test on the D. Morris farm is dry in all sands. In Perry Township, the Peoples Gas Co. has a gasser in the Fifth sand on the Della Fox farm. In Perry Township, the Carnegie Natural Gas Co. has a gasser in the Bayard sand on the Paul Ingram farm.

Drilling Tests

In Wayne Township, Greene County, the Carnegie Natural Gas Co. is due in the sand on the Ingram-Wilson farm. In Richhill Township, the Natural Gas Co. of West Virginia is drilling a second test on the Gribben heirs' farm. In Springhill Township, J. A. Null and others are drilling in the David Null farm. The Manufacturers Light & Heat Co. is drilling on the Nancy Bungard farm. The Keystone Oil & Gas Co. is drilling on the W. M. Caseman farm. In Morris Township, Sprouls & Co. have started to drill on the H. Clutter farm. In the same township, the Manufacturers Light & Heat Co. is drilling on the L. D. Leightner farm.

NAVAJO OIL ROYALTIES

The Navajo Indians of Arizona and New Mexico, according to Charles H. Burke, Commissioner of Indian Affairs, have received during the past six years, more than $700,000 in cash from royalty oil. In the fiscal year 1927, the banner year, the oil production from Navajo wells was about 860,000 bbls. The output for 1928, because of the decreased demand for oil and other reasons fell to 344,000 bbls. The income from oil to the Navajo tribe during the past two years was more than $373,000.



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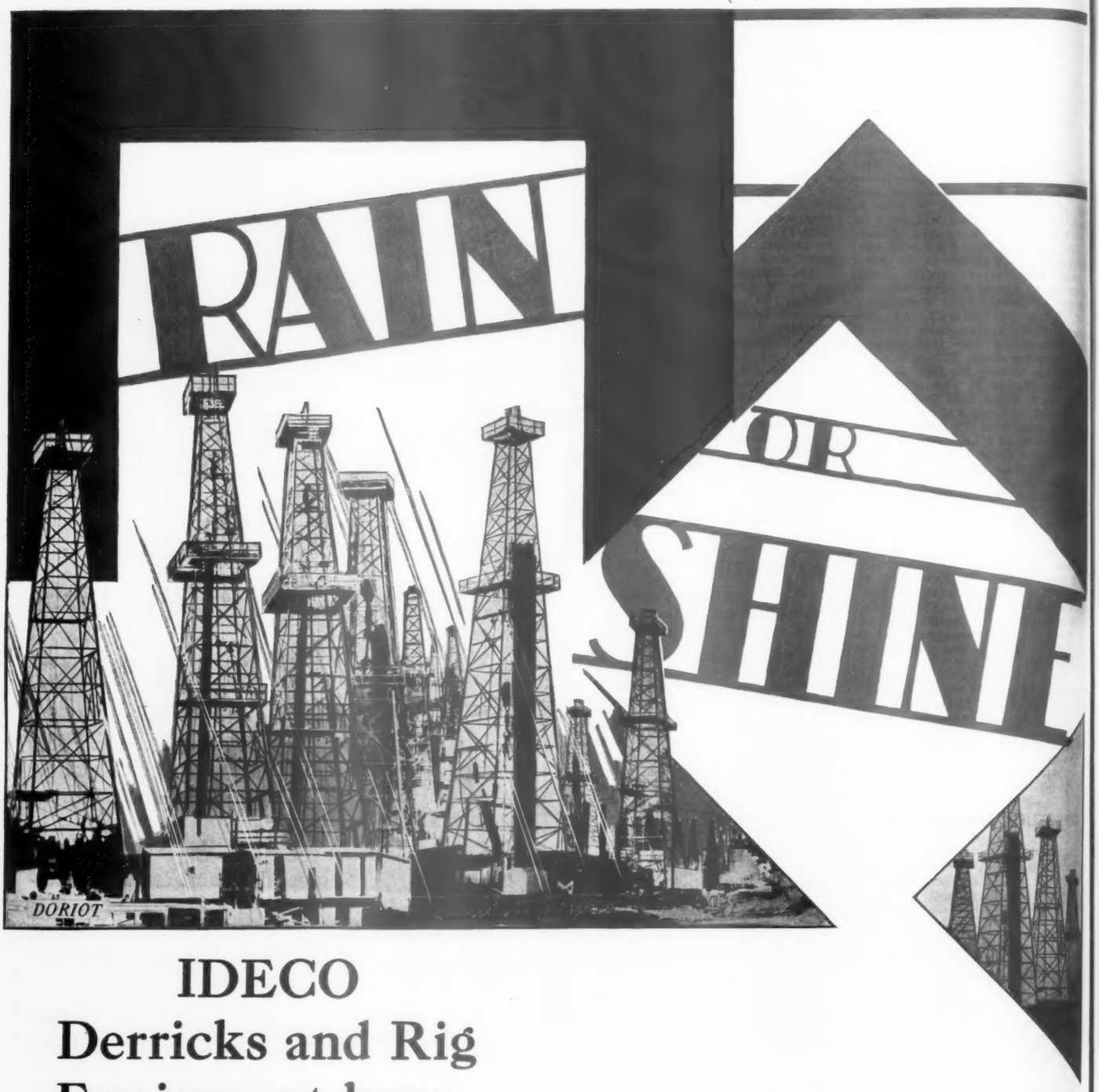

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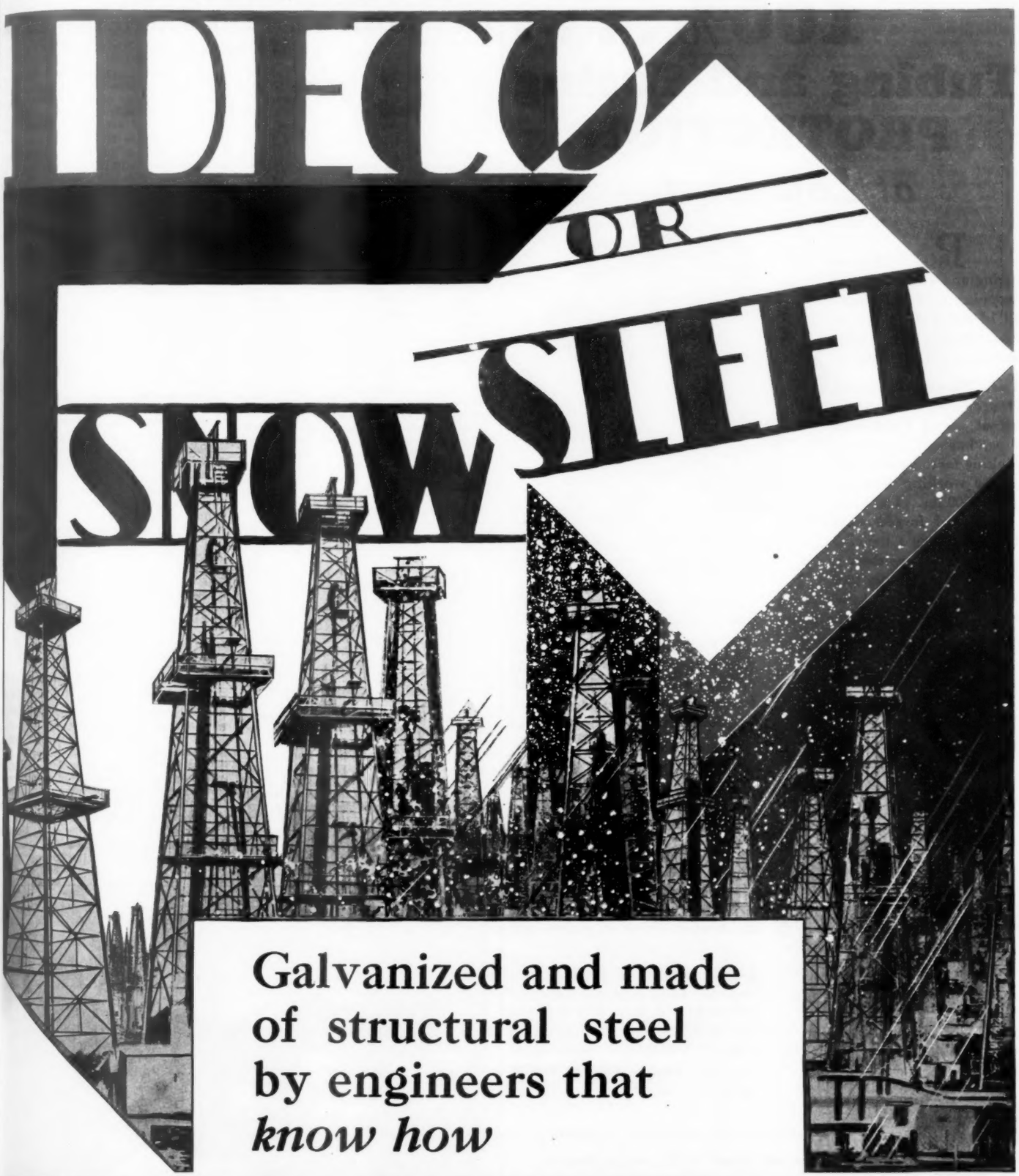

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HERCULES TUBING HANGER
Cross Section View
(Patent Pending)

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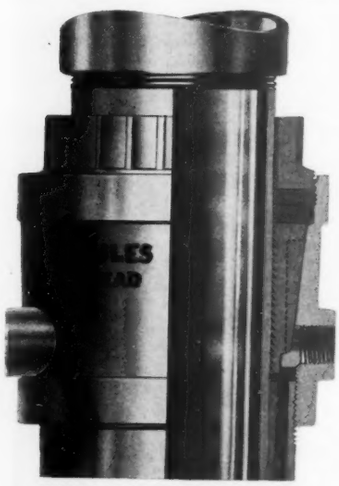

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(Patent Pending)

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NEW CALIBRATING DEVICE AIDS WORK WITH THE MAGNETOMETER

By L. Spraragen

In the September 27, 1928, issue of The Oil and Gas Journal under an article on "The Use of Magnetometers in Oil Fields," there was described a coil suitable for determining the scale constant or gamma per scale division for a magnetometer.

Numerous inquiries from different companies regarding this piece of apparatus indicated a general demand for a convenient portable calibrating coil whereby field magnetometer operators might rapidly and accurately determine the scale value for the magnetometer.

At present the customary method of determining the scale constant, or in other words the gamma value per scale deflection, involves the use of a set of permanent magnets carefully calibrated at regular intervals by some geophysical laboratory or the Bureau of Standards.

The apparatus here described is a decided improvement over the permanent magnet method just mentioned and makes the operator independent of geophysical laboratories for the calibration of the permanent magnets and at the same time eliminates any delay that might be caused by shipping of a standard set of magnets from one party to the other.

Briefly the device shown here consists of a calibrated coil which rests on the magnetometer; an instrument panel on which are mounted an ammeter, a potentiometer, a set of resistances, and a switch; two dry cell batteries and a suitable connecting cord. All parts are so designed that they fit neatly in a carrying case the overall dimensions of which are 10 by 12 by 4¾ inches deep.

The purpose of the apparatus is to set up a magnetic field of known strength and to note the deflection in scale divisions of the magnetometer when it is placed in this known field. To accomplish this the magnetometer is set up in the usual way and oriented with respect to the magnetic meridian. The ... ing system is adjusted to approximate... the center of the scale range by mea... of one of the auxiliary magnets. The co... is then placed over the magnetome... and connected to the battery supply.

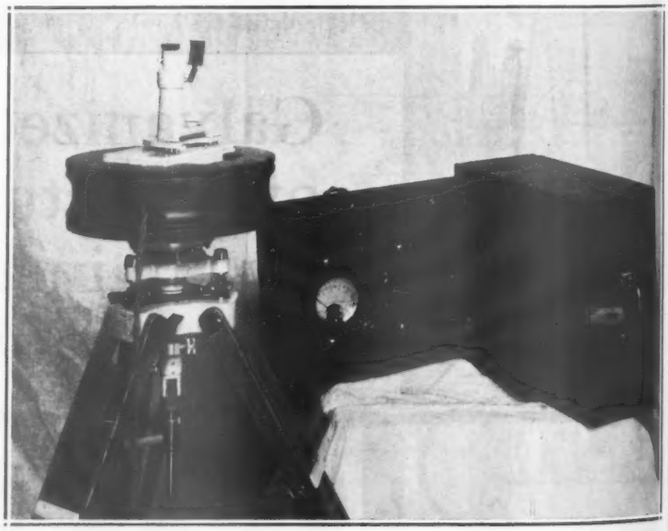
The current in the coil is adjusted ... a value of 1 milliampere by means ... the potentiometer and ammeter. The ... deflection for this current is noted, t... current is interrupted by means of t... switch and the deflection for zero cu... rent is noted. The difference in the... two readings represents the net defle... tion for 1 milliampere through the co... This process is repeated up to 10 mil... amperes, the net deflection for ea... value of current being obtained ea... time. These net deflections are the... plotted against the current value resul... ing in a straight line from which ca... be obtained the average magnetome... scale deflection per milliampere of cu... rent through the coil. Then the gamm... value for the coil per milliampere b... ing known the average scale deflectio... of the magnetometer per milliampere ca... be converted to gamma. From the rel... tion gamma per milliampere in coil an... magnetometer scale deflection per mil... ampere it is simple to determine th... gamma per scale division.

A sample set of data for a coil o... this type is given below.

Current Milliamps	Scale reading N-E	Scale reading zero current	Net scale deflection N-E	Scale reading N-W	Scale reading zero current	Net scale deflection N-W	Av. net deflection N-E and N-W
0	+ .5	+.5	0	+ 1.3	+1.3	0	0
1	+ 3.5	+.5	3	+ 4.3	+1.3	3	3
2	+ 6.5	+.5	6	+ 7.3	+1.3	6	6
3	+ 9.5	+.5	9	+10.3	+1.3	9	9
4	+12.5	+.5	12	+13.3	+1.3	12	12
5	+15.5	+.5	15	+16.3	+1.3	15	15
6	+18.5	+.5	18	+19.3	+1.3	18	18
7	+21.5	+.5	21	+22.3	+1.3	21	21
8	+24.5	+.5	24	+25.3	+1.3	24	24
9	+27.5	+.5	27	+28.3	+1.3	27	27
10	+30.5	+.5	30	+31.3	+1.3	30	30

The gamma value per milliampere for this particular coil was 75.9 and the av... erage net deflection for this magneto... eter as obtained above was 3 scale div... sions per milliampere, then it follow... that a change of 75.9 gamma in fiel... strength will give a deflection of 3 scal... divisions or 1 scale division for this pa... ticular magnetometer was equivalent t... 75.9 divided by 3 or 25.3 gamma, whic... is the scale constant.

The range of the calibrating outfit is readily increased by reversing the direc... tion of the current in the coil.



The figure shows the coil in position on the magnetometer ready for calibration. At the right of the picture is seen the carrying case showing the meter panel mounted on the cover. In actual use of course the case is placed about 18 feet from the magnetometer to reduce the interference. When assembled for transportation the coil fits into the upper part of the case.

CANADIAN FIELDS

(Continued from Page 56)

at 1,352 bbls., and McLeod Oil Co. reports an actual production of 923 bbls., but in both cases total production was not delivered.

According to the official statement, Home Oil Co.'s No. 1 deep lime producer entered the lime at 5,107 feet, and 30 feet in encountered a gas flow of 3,000,000 feet. At 5,235 feet a second gas flow was met, making about 2,000,000 feet additional. Drilling was continued to 5,280 feet, where the big production was encountered.

Royalite Wells

Royalite's No. 16, LSD 2, Section 12-20-3w5, at 4,711 feet and Royalite's No. 18, LSD 15, Section 12-20-3w5,, at 3,826 feet are both being connected with separators before drilling into the deep lime. Casing was cemented in the top of the lime at these depths. Royalite's No. 19, LSD 5, Section 6-20-2w5, is standing cemented in the lime at 3,611 feet and is moving back the boilers. Royalite's No. 12, LSD 3, Section 13-20-3w5, is drilling at 3,217 feet. Royalite's No. 13, LSD 6, Section 13-20-3w5, is on a production test at 4,946 feet. Royalite's No. 14, LSD 4, Section 7-20-2w5, is standing at 3,252 feet. Royalite's No. 15, LSD 1, Section 12-20-3w5, is testing light crude production at 3,003 feet. Royalite's No. 20, LSD 7, Section 12-20-3w5, is straightening a crooked hole at 3,020 feet. Royalite's No. 21 is drilling at 2,309 feet.

Foothills Oil & Gas Co.'s No. 2, LSD 8, Section 1-20-3w5, is cleaning out cavings at 3,707 feet before drilling deeper. This well was a large light crude producer last fall, when 300 feet of hole caved. Foothills' No. 3 is rigged up and laying water lines. Home Oil Co.'s No. 2, LSD 14, Section 20-19-2w5, is fishing at 4,432 feet. Home's No. 3, same LSD, is drilling at 1,458 feet. Northwest Associated's No. 1, LSD 6, same section, is drilling at 3,506 feet.

Southwest Petroleum, a subsidiary of Foothills Oil & Gas Co., is preparing to drill in the south end of the field, where it has 640 acres.

Following the recent annual meeting of Dalhousie Oil Co., announcement has been made that Dalhousie's No. 7 will be drilled this year, work to commence in the spring. A tentative location was made some time ago in LSD 10, Section 13-20-3w5. Dalhousie's No. 6, in the same section, got a light crude production at 5,393 feet, and is now making 14 bbls. a day, though the flush production was much better. It is possible a new site may be selected for No. 7 and additional tests may be started lated. The company holds 1,832 acres of freehold with gas rights and 800 acres of leases, all in the Turner Valley Field. It also has a 55 per cent stock interest in the Mid-West Oil Co. Dalhousie's No. 1, the old Southern Alberta No. 1 which was later deepened to the lime, under normal conditions makes arund 225 bbls. a day, but has experioenced considerable freezing. The diamond drill may be used this spring to clean it out and bring back production. A project is under way for the reorganization of the old Mid-West Oil Co., a Dalhousie subsidiary, reducing its capitalization to $500,000, the present shareholders to take one new share in exchange for four old shares, while Imperial Oil, Ltd. will take 250,000 shares at a par value of $1 each to finance new drilling operations.

McLeod Operations

McLeod Oil Co.'s No. 1 LSD 16, Section 1-20-3w5, is being cleaned out to restore production. Shortly after drilling resumed, the well blew into production for a short time, making around 7,500,000 feet a day, with an oil recovery of about 100 to 150 bbls. a day. After a short time another bridge formed and cut off production. Cleaning operations are still continuing. McLeod's No. 4, same LSD, is drilling at 4,520 feet, or 758 feet in the lime. McLeod's No. 3, same LSD, is at 4,871 feet, and fishing. The annual meeting of the McLeod Oil Co. to be held on February 22, will deal with two proposals for financing further operations, one the doubling of the company's present capital of $250,000, and the other a loan of $50,000 from W. D. Lundy.

Okalta Oils' No. 1, LSD 1, Section 1-20-3w5, is still frozen in the deep lime. Okalta's No. 2, LSD 8, same section, in light crude production at 3,170 feet, is making around 80 bbls. a day. Okalta's No. 3, LSD 9, same section, is drilling at 2,530 feet after straightening a bad hole.

Illinois-Alberta Oils' No. 2, LSD 14, Section 12-20-3w5, is at 3,550 feet with casing cemented in the top of the lime, and is clearing ice from the cellar preparatory to drilling into production.

Calmont Oils' No. 1, LSD 2, Section 1-20-3w5, is being shot with 300 quarts to blow the lost tools into the side of the hole. The hole bottoms on 5,650 feet, and there is some wet gas production, shut off by bridging. J. C. Dallas, managing director, has returned from England, where he arranged for the financing of Calmont's No. 2, which will be drilled in the vicinity of No. 1, new cable tool equipment being used. No. 2 will spud in this spring.

Regent Oil Co.'s No. 1, LSD 16, Section 1-20-3w5, has resumed drilling at 3,845 feet, after using three shots to force the lost tools into the side of the hole. The hole which is apparently clear is in the deep lime, and the wet gas production has somewhat increased, but it will be carried some distance deper.

Vulcan Oils

Vulcan Oils, Ltd. held its annual meeting recently, when it was decided to increase the present capitalization of $250,000 to $500,000. Officers were elected as follows: president, W. G. Peterson; vice president, Dr. G. M. Carson; secretary-treasurer, A. J. Flood; directors, Dr. H. P. Parker, R. L. Elves, D. Charles Jones, L. H. Stack, all of Vulcan, Alta. A. G. Spooner, former president, and H. D. Spooner did not stand for re-election. Efforts will be made to clean out No. 1 producer. Vulcan's No. 2 is standing at 4,906 feet.

Spooner Oils' No. 2, Section 24-20-3w5, is drilling at 5,110 feet, after getting the top of the deep lime at 5,065 feet. New McDougall-Segur's N. 2, LSD 14, Section 12-20-3w5, is drilling at 4,660 feet. British Dominion Oil Development Corp.'s No. 2, LSD 6, same section, has resumed drilling in the top of the McDougall-Segur sand at 3,550 feet, after bailing about 100 bbls. of light crude; casing has been run nearly to the bottom.

Advance Oil Co.'s No. 5, LSD 16, Section 19-19-2w5, is drilling at 2,950 feet. Mayland Oil Co., LSD 10, Section 17-19-2w5, is drilling at 4,915 feet after casing off considerable light crude; at this depth it is close to the Dalhousie sand.

East Crest Oil Co.'s No. 1, LSD 5-6, Section 16-19-2w5, is drilling in the lower Fernie shales at 3,490 feet. No. 2 has been located in LSD 4, same section, about 300 yards south of No. 1, at a point thought to be 500 feet higher on the structure. Model Oils, LSD 8, Section 22-20-3w5, is drilling at 3,600 feet, with some slight shows of oil and gas. Freeman-Lundy Syndicate, LSD 10, Section 1-20-3w5, is drilling around 700 feet. Freehold Oil Corp., SW quarter Section 3-21-3w5, is resuming at 2,540 feet, after delay due to frozen water lines.

R. G. Straker has been appointed liquidator of the Highland Oil Co., which recently sold its assets to the Regent Oil Co. in exchange for Regent stock. The Highland company had an unfinished test in LSD 5, Section 5-20-2w5, down 3,020 feet and shut down for more than a year. This will probably be abandoned, as adjacent drilling by other companies indicated the producing formation to be deeply buried at this point. Under the liquidation it is expected distribution will be made of the Regent stock to individual shareholders of the Highland company.

In the Wainwright Field, east central Alberta, Wainwell Oils' No. 2, LSD 15, Section 36-44-7w4, has resumed drilling with a rotary outfit at 1,700 feet, and should get the sand before the end of February.

Viking Field

In the Viking Field, east of Edmonton, Hudson's Bay-Marland No. 1 is reported drilling in the limestone, after getting a good gas production in the Viking sand. No production has been encountered in the lime, but drilling will be continued for a further 100 feet, when, if the test does not show results, it will probably be abandoned and finished as a gasser in the Viking sand. The Hudson's Bay-Marland company will drill a second test at least to the Viking sand this season, the production to be taken by Northwestern Utilities, Ltd., which supplies gas to Edmonton. It is also announced that the Hudson's Bay-Marland Oil Co. will drill one or two other tests in other parts of Alberta this year.

Northwestern Utilities of Edmonton will also carry on drilling operations in the Viking Field, putting down two tests to the gas sand to maintain its supply.

In the Skiff Field, Imperial-Devenish's No. 3, offsetting the discovery well, is drilling at 2,803 feet and should get the producing horizon by the end of February.

Canadian operators are interested in the prospective drilling operations this season in the Sweetgrass Hills region of Montana, close to the Alberta boundary. Drilling so far has indicated considerable gas production, with possibilities of oil; and numerous gas pipe line projects are being considered. The Patterson interests of Spokane, operating as the Western Natural Gas Co., have located a test on the Morrison ranch in N SW NW Section 5-37-4e, within a half mile of the Alberta boundary and a short distance north of the Gladys-Belle gasser.

In the contiguous Alberta area, a large gas production was developed some years ago by the Rogers-Imperial gasser in LSD 9, Section 29-1-11w4, and by Imperial Oils' Erickson Coulee test, LSD 13, Section 8-1-12w4. The Sweetgrass structure is also apparently connected with the Skiff structure, where Devenish Petroleum's No. 1 got crude oil. On the Rogers-Imperial structure, the Range Oil & Gas Co., which last year took over leases and production, will this spring resume drilling No. 2 in LSD 6, Section 21-1-11w4, at 900 feet. This company has a permit to export the gas to Montana.

Deepest Test in Viking

It is officially announced by Glen M. Ruby, manager of the Hudson's Bay-Marland Oil Co. that the company's No. 1 deep test in the Viking Field, east central Alberta, has been definitely abandoned at 3,040 feet depth. The test last summer got a large gas production estimated 9,750,000 feet a day, in the Viking sand at 2,120 feet. This gas was delivered to the Edmonton line of the Northwestern Utilities, Ltd., and the hole carried deeper for a test of the underlying formations. The drill got the lime at 2,442 feet and continued in the lime to the present depth without encountering either oil or gas. The hole will be plugged back, and finished as a gasser in the Viking sand. Hudson's Bay-Marland No. 1 was the deepest test yet drilled in the Viking Field, and is regarded as fairly conclusive evidence that no gas or oil exists in the lower horizons. The company will start No. 2 about three-quarters of a mile east of No. 1 as a test of the Viking sand, the production to be taken by Northwestern Utilities, Ltd.

In the Pincher Creek Field, it is reported that Alberta Gas & Fuel Co.'s Doherty No. 3 on Drywood Creek has discontinued drilling at 3,500 feet. A core drill will be used to put down a hole a little to one side to determine the dip of the formation.

In the Turner Valley Field, Sentinel Oil Co.'s No. 1, LSD 15, Section 8-20-2-w5, is unloading a supply of special 8-inch casing. The test has been shut down for some months waiting for this, and will be carried deeper in the spring. The hole is down 4,650 feet and in good shape. The location is some distance east of the center of the main drilling area in Turner Valley, and, if productive, will materially extend the field. Sentinel Oil Co. holds the 400 acres of Section 8-20-2w5, lying south and east of Sheep Creek. Officers are: President and managing director, J. F. M. Moodie; vice president, Arthur G. Graves; secretary-treasurer, Walter Agnew; directors, D. J. Young and J. Glen Gibson.

Ontario Fields

In the Ontario fields, Union Natural Gas Co. is starting two new tests in Dawn Township, Lambton County. Union's No. 30 is the Mahlon farm, Lot 24, Concession 14, about the center of the lot and southeast of Union's No. 24, which was a small gasser. Union's No. 31 is in the Al Wicks farm, Lot 23, Concession 5, at the west end of the lot near the center-west line, and in the vicinity of Union's No. 20.

In Dover Township, Kent County, Ajax Oil & Gas Co. is unofficially reported preparing to start No. 4, not far from No. 3. A line is being laid to deliver the production of No. 3 to the Union Natural Gas Co. The company is planning to increase its capital from $500,000 to $1,000,000 with a view to securing funds for the further testing of the Trenton formation in Dover Township, east of the old field. None of the wells so far drilled has proved a large gasser, but all have some production, and No. 3, a considerable distance to the east appears the best, and has a rock pressure around 900 pounds, justifying further testing.

The best producers in the Dover Field were those drilled by the Union Natural Gas Co. in and subsequent to 1917. Out of a large number of tests, the Union company secured six producers, two large wells. Two of the original producing wells have been plugged, but Nos. 1, 13, 14 and 20 are still producing. Some of these deep wells had both oil and gas, but the quantity of oil was small and it was ultimately shut off.

Subsequent to the Union Natural Gas Co. development the Petrol Oil & Gas Co. drilled three tests further east, two still producing fair quantities of gas. The Union Natural Gas Co. takes the entire Dover gas production; the Southern Ontario Gas Co. at one time took the gas from the Petrol wells, but its line was later taken up.

The original deep field in Dover West was, at the time of the first discoveries in 1917-18, pretty well delimited, about a score of deep tests being put down the first year and most of them finishing dry. The source of the oil is apparently a small local structure in a syncline; and hope is entertained that similar local structures may ultimately be found where production is larger.

CALIFORNIA FIELDS

(Continued from Page 56)

The Cypress Oil Co. claims to have cored 15 feet of oil sand in No. 1 Fairbanks in Section 22-32-23 and this well, located north of the Union's No. 1 Western Petroleum, will undoubtedly be watched with interest due to the failure of several other tests to find the Union sand on adjoining acreage. Several new wells were chalked up in the Kern River Field of Kern County during the past few days and a check of development work indicates the probable completion of two more during the coming week. The Chanslor-Canfield Midway Oil Co.'s No. 22 on the Kern Front in Section 23-28-27 was finished as a 250-bbl. pumper from 2,210 feet but was shut in subsequent to completion in conformity with the prevailing policy. The Texas Company successfully completed No. 9 Midlands as a 165-bbl. pumper from 2,030 feet, the hole being finished with an 9⅝-inch oil string carrying 270 feet of 100-mesh screen.

LOUISIANA-ARKANSAS

(Continued from Page 48)

Hatcher, Section 21-19-4. Magnolia Petroleum Co. is drilling sandy lime at 2,151 feet on No. 2 Morrison, Section 2-19-4 and sand rock at 2,025 feet on No. 2 United States, Section 18-19-5. Ouachita Natural Gas Co.'s No. 1 Lieber, Section 4-19-4 re-cemented 6-inch at 2,088 feet, total depth 2,110 feet; No. 1 Sandidge Patton, Section 15-20-4, is a derrick. Palmer Corp. has a derrick up for No. 6 fee in Section 24-19-4 and Peerless Carbon Co. has derrick up for No. 4 Moore, Section 26-20-4. Pipes & Mack

set 8-inch at 872 feet on No. 1 McGee. Section 10-18-4 and are drilling at 1,300 feet; No. 3 Wright, Section 11-18-4, is drilling shale at 1,350 feet. Southern Carbon Co. made location 660 feet north and 1,320 feet west SE cor. Section 33-20-4 for No. 11 Fairbanks. United Carbon Co.'s No. 1 Spade, Section 32-19-4 is drilling around 200 feet and No. 2 in Section 36-19-3 is a derrick.

Union Parish—Industrial Gas Co. has derrick up for No. 1 Cook, Section 12-20-3. United Carbon Co. is arranging to test No. 1 Nichols, Section 6-20-3, at 2,078 feet; No. 1 Reed, Section 12-20-3, set 170 feet of 10-inch and is drilling at 715 feet.

Richland Parish

Carbon Gas Co. is drilling No. 1 W. T. Sartor, Section 16-16-6, at 1,600 feet. Magnolia Petroleum Co.'s No. 1 D. R. Sartor, Section 21-16-6, is drilling at 2,360 feet and No. 2 J. Sartor, in Section 16-16-6, is shut down at 2,633 feet waiting orders after another dry test. North Louisiana Natural Gas Co. made location 660 feet north and 495 feet west SE cor. NE Section 22-16-6, for No. 1 Hemler.

Webster Parish

Cotton Valley—Cotton Valley Syndicate's No. 19 Hope, Section 24-21-10 is shut down for orders after testing 4,000,000 feet of gas, total depth 4,700 feet. Magnolia Petroleum Co.'s No. 4 Ira Cox, Section 23-21-10, is shut down repairing rig, total depth 3,686 feet; No. 6 Marshall, Section 21-21-10 set 403 feet of 16-inch surface casing and is drilling at 750 feet; No. 1 McCook & Hibbler, Section 22-21-10 is drilling anhydrite at 4,318 feet.

Sarepta and Shongaloo—J. W. Clark set 270 feet of 10-inch on No. 2 Mayfield, Section 20-23-9, and is drilling at 900 feet. Magnolia Petroleum Co. is drilling No. 3 H. M. Branton, Section 6-22-9, at 2,584 feet; No. 1 Cook, Section 2-22-11, cemented 13¾-inch surface string at 305 feet and is drilling at 1,095 feet; No. 1 Denman set 8⅛-inch at 2,702 feet to test 7 feet of sand, total depth 2,710 feet.

ARKANSAS

Johnson County

Arkansas Natural Gas Corp.'s No. 2 Bynum, Section 12-10-24, is drilling at 1,385 feet and No. 1 McPherson, Section 10-10-24, at 1,800 feet.

Nevada County

Humble Oil & Refining Co.'s No. 5-B Groves, Section 1-14-21, is waiting for standard rig to pump from 5 feet of sand, total depth 1,140 feet; No. 2 Hain, Section 1-14-21, is drilling lime at 3,150 feet. Wright Oil Co.'s No. 4 Groves, in the NE cor. NW NW Section 12-14-21, set 10-inch at 216 feet, 6-inch at 1,133 feet and is waiting for standard rig to pump, total depth 1,140 feet.

Ouachita County

Smackover—Gulf Refining Co.'s No. 9-A Goodwin, Section 5-16-15, tested salt water at 2,576 feet. Shell Petroleum Corp. perforated casing from 1,962-72 feet on No. 1 Williams, Section 34-15-15 and is waiting for standard rig to pump with 200 feet of fluid in the hole. Simms Oil Co.'s No. 1 Hildebrandt, Section 33-15-15, is drilling sandy lime at 2,801 feet.

Union County

Champagnolle—J. W. Hooser's No. 4 Slade, Section 4-17-14, set one joint of 5⅛-inch at 3,228 feet and 95 feet of 4-inch liner with one joint of perforated at the bottom, at 3,308 feet and bailed dry with a show of oil and salt water. Lion Oil Refining Co.'s No. 5 Rowland, Section 15-17-14 is plugging back to perforate; No. 5 Union Sawmill, Section 7-17-13, is drilling red gumbo at 4,384 feet. Magnolia Petroleum Co.'s No. 3 Alice Gregory, Section 15-17-14, is coring at 2,837 feet. Ohio Oil Co. set 188 feet of 10-inch on No. 1 Adams, Section 7-17-13 and 6⅝-inch at 3,035 feet to test 4 feet of sand in No. 2 Frazier, Section 6-17-13, total depth 3,045 feet; No. 1 Nash, Account 3, Section 6-17-13, is waiting for standard rig to pump with 1,500 feet of oil in the hole from 13 feet of sand, total depth 3,065 feet; No. 1 Raulston, Section 12-17-14, set 190 feet of 10-inch and is drilling at 1,183 feet. Rovenger Oil Corp.'s No. 2-B Perdue, Section 9-17-14, is drilling at 2,400 feet.

ElDorado—Gulf Refining Co. tested 50,000,000 feet of gas on drill stem test of No. 2 Gaddy, Section 30-17-14, at 2,850-59 feet and is arranging to set casing to test 4 feet of sand; No. 1 Woodley, Section 6-18-14, is drilling at 3,359 feet. Standard Oil Co. set 10-inch at 103 feet on No. 5 Burns, Section 31-17-15, and is drilling at 850 feet.

Smackover—Sam Richardson is rigging up to drill No. 7 Lawton in the NW cor. N half S half SW SW Section 10-16-15.

EAST TEXAS

Panola County

S. E. Davidson and others' (William Gross) No. 1 Johns in the W. H. Wooley Survey is underreaming 6-inch casing cemented at 1,993 feet after testing 500,000 feet of gas at 2,009 feet. Magnolia Petroleum Co. set 13⅜-inch at 202 feet and is drilling at 1,184 feet on No. 15 Steel, B. C. Jordan Survey. Natural Gas Producing Co. set 9-inch at 2,238 feet, tested 4,000,000 feet of gas at 2,262 feet and is arranging to deepen No. 8 Roquemore in the B. C. Jordan Survey. The Texas Company made location in the Isom Hatcher Survey for No. 10-B T. C. Adams.

LA.-ARK. WILDCATS

(Continued from Page 48)

year commercial leases, failing which he plans to cut it up into units turn them and drill. Various other individuals and companies are buying leases scattered all through that part of the parish.

A. H. Tarver has re-leased the same 4,000-acre block he got from the Long-Bell Lumber Co. in Sabine Parish some time ago and will start a test to the Blossom sand within 60 days, probably in Section 30-8-14. R. L. Gay obtained an extension of time limit for the test he is to drill on the Long-Bell land in Section 26-8-14, and will probably start within the next 60 days; as soon as it becomes possible to get a rig into that wild wildcat country.

D. M. Lide has 2,000 acres east of Ab Jones' 20-bbl. pumper in Section 12-14-11, completed at 1,761 feet in December and will drill, probably in Section 11-14-11, to 2,600 feet. The block is in Sections 10, 11, 14 and 15-14-11. Jack Moffatt has taken over Carter & Collins' No. 1 Ball in Section 29-7-1w, Grant Parish, with acreage surrounding and will finish the test, drilling at present at around 200 feet.

MISSISSIPPI

Activity in the Jackson area of Mississippi continues, with rumors of a test to be drilled by the Gulf Refining Co. in the center of a block of 2,000 acres in Sections 4, 5, 6, and 7-6n-1e Hinds County. Approximately 100,000 acres in Hinds, Madison and Rankin Counties, southeast of Jackson, have been leased by big companies of which Gulf Refining Co. and Sun Oil Co. are reported to have 35,000 acres each; Carter Oil Co., 10,000 obtained five or six years ago; Amerada, 4,000; Pure 2,000; and Ohio, 3,000. The Gulf company is reported doing torsion balance work on additional tracts in Madison County.

Donelon & Berry, of Memphis, are reported backing J. J. Munday, also of Memphis but formerly a Texas operator, in a venture in northeastern Fayette County about 50 miles northeast of Memphis. Munday has assembled about 40,000 acres on what is called the Laconia structure, under straight commercial leases, but he and his backers are reported about to start a test as the Tennessee Geological Survey repeatedly has published favorable reports on this structure.

Chester County Oil Co. is drilling No. 1 Montgomery at around 600 feet. Location is 7 miles southwest of Decatursville in Decatur County. Standard Oil Co.'s No. 1 Wyatt, 3 miles south of Decatursville, is drilling at 225 feet. This part of the country is not sectionized.

The one wildcat completion during the week appears to have marked the southeastern extremity of the Richland Parish Gas Field. Richland Operating Co.'s (Moody-Seagraves) No. 1 Chapman in the SE NE Section 19-16-7, a mile east of the nearest producer, Moody-Seagraves' No. 1 Taylor in Section 24-16-6 getting salt water at 2,495 feet, where it was abandoned. The same company, however, has location for another well a mile or so south in Section 30-16-7, which might turn out differently, if it is drilled.

Carlton Drilling Co.'s No. 2 Stevens in Section 12-11-16, Logansport district of DeSoto Parish is standing 300 feet in fluid, 50 per cent oil, from 1,970 feet and Warren & Caruthers' No. 1 Ramsey in Section 33-13-16 in the same territory, is arranging to run a drill stem test at 2,800 feet. This well and acreage was recently taken over by the Longstreet Syndicate.

J. G. Marcum and others' No. 1 DeYampert in Section 5-19-4 Ashley County, Arkansas, is expected to be reported abandoned next week as it is shut down at 3,101 feet waiting orders. Joe Hurley's No. 1 Arkansas Timber Co. in Section 28-16-12 Calhoun County, which was very much in the spotlight a week ago, made another test at 2,328 feet with the same result as in the first at 2,314 feet —dry. It is last reported drilling sandy lime at 2,338 feet.

J. E. Crosbie, who has been having considerable success drilling shallow wells in Smackover, getting strippers running from 25 to 50 bbls. a day, has made location for another one 1½ miles north of production, No. 1 Goodwin in Section 13-15-16 Ouachita County. His No. 1-A Primm in Section 24-15-16 is standing 300 feet in fluid from 32 feet of broken sand, total depth 2,072 feet. Gulf Refining Co.'s No. 9-A Goodwin, Section 5-16-15, tested salt water at 2,576 feet. This is an old well drilling deeper, completed in 1925 pumping 250 bbls. from 2,379 feet.

NORTH LOUISIANA

Bienville Parish

W. P. Wallace is drilling No. 1 State, Section 16-16-10, at 500 feet.

Bossier Parish

Woodmansee and others' No. 1 Bollinger, Section 9-22-11, is drilling at 450 feet.

Caddo Parish

D. C. R. Oil Co. got its fish out of the hole and is drilling No. 1 Hunter estate, Section 17-19-14, at 1,100 feet.

Claiborne Parish

El Dorado Chief Oil Co.'s No. 1 Baker, Section 26-20-7, is drilling lime rock at 2,170 feet.

DeSoto Parish

Benedum & Trees Oil Co. is arranging to set surface casing on No. 1 Mahoney, Section 22-14-12, and has rig up for No. 1 Nicholson, Section 2-15-14. Carlton Drilling Co.'s No. 1 Stevens, Section 12-11-16, is standing 300 feet in fluid, 50 per cent water, total depth 1,970 feet. Longstreet Syndicate's No. 1 Ramsey, formerly Warren & Carruthers, in Section 33-13-16, is shut down at 2,800 feet awaiting drill stem test. Magnolia Petroleum Co. has rig up to drill No. 3 Fortson, Section 4-12-11. R. O. Roy's No. 1 Sample, Section 1-13-14, is drilling at 1,620 feet. Thorn Oil Co. has shut down No. 1 Burford, Section 22-14-14, at 3,020 feet.

East Carroll Parish

Palmer Corp.'s No. 1 Mitchner, Section 8-19-11, is drilling lime at 2,675 feet.

Franklin Parish

Dabis and others' No. 1 Moore, Section 12-11-6, is shut down at 1,430 feet.

Grant Parish

Carter & Collins set 140 feet of 10-inch on No. 1 Ball, Section 29-7-1w.

Lincoln Parish

Shaw and others' No. 1 Voss, Section 1-20-3, is drilling below 300 feet.

Monroe District

Ouachita Parish—Phillips and others' No. 1 School, Section 16-16-4, is drilling at 3,100 feet.

Natchitoches Parish

Robeline Oil & Gas Co. is drilling a rock at 2,660 feet on No. 1 Cassada, Section 7-8-9.

Sabine Parish

R. L. Gay bailed dry at 2,133 feet on No. 1 Sabine Lumber Co., Section 13-7-14, and is arranging to deepen.

ARKANSAS

Ashley County

J. B. Marcum's No. 1 DeYampert, Section 5-19-4, is shut down at 3,101 feet, waiting orders. The Texas Company in shale at 2,773 feet on No. 1 Ke... Section 11-18-4.

Calhoun County

Joe Hurley and others' No. 1 Arka... Timber Co. in Section 29-16-12, to... dry at 2,314 and 2,328 feet and is d... ing sandy lime at 2,338 feet.

Drew County

Ohio Oil Co. is drilling shale at 1,2... feet on No. 1 Jerome Lumber Co., ... tion 13-15-4.

Logan County

Arkansas Natural Gas Corp. set 7-i... casing at 3,610 feet on No. 1 Parks, S... tion 26-8-24, and is drilling at 3,700 f...

Miller County

E. A. Martin's No. 4 Dale, Section ... 15-26, is drilling again at 3,100 feet.

Ouachita County

Smackover—J. E. Crosbie has derr... up for No. 1 Goodwin, 150 feet south ... east NE cor. NE NW Section 13-15-... No. 1-A Primm, Section 24-15-16, ... mented 6⅝-inch at 2,040 feet and ... standing 300 feet in fluid from 32 f... of broken sand, total depth 2,072 fe... McDonald Brothers' No. 1 Willson, S... tion 25-15-18, bailed to 300 feet of f... bottom where there was a small show ... oil but no gas, total depth 2,818 fe... Charles McDonald's No. 1 Willson ... the same section, is shut down at 2,0... feet waiting on fuel.

Stephens — Louisiana Oil Refin... Corp. made location 361 feet north a... 347 feet west SE cor. Section 15-15-... for No. 1 Manley.

Union County

Bell and others' No. 1 Terrell, Secti... 27-18-14, is shut down for repairs ... rig, total depth 2,294 feet. Calgo O... Co.'s No. 1 Primm, Section 25-18-15, ... reaming to bottom, total depth 4,12... feet. J. O. Moore set 187 feet of 10-in... and shut down for fuel on No. 1 Union Sawmill, Section 11-18-12.

EAST TEXAS

Camp County

Rogers and others' No. 1 Enfelt in the R. M. Montgomery Survey, tested dry at 1,870 feet and is drilling at 1,920 feet.

Red River County

D. M. Buffington is drilling No. 1 Hossier in the Ed Hughes Survey, ... 1,550 feet. Shad Harper and others' No. 1 W. R. Garland, Joseph Wagley Survey, is shut down for orders, total depth 1,80... feet.

Shelby County

Chapparall Oil Co.'s No. 2 Holt, Matthew Moore Survey, is shut down at 3,00... feet, waiting orders. Gulf Refining Co. is drilling hard gray lime at 2,855 fee... on No. 1 Carroway, J. H. Patterson Survey.

SOUTHWEST TEXAS FIELDS

(Continued from Page 46)

2,322 feet making 35,000,000 feet of gas with 650 pounds of rock pressure.

Houston Oil Co.'s No. 1-G Benavides, Survey 701, completed at 2,304 feet made 40,000,000 feet of gas daily.

ABANDONED TESTS

Caldwell County

Tip de Arman's No. 1 R. W. Carter, Gerren Hinds Survey, has been temporarily abandoned. Brawn and others' No. 1 R. W. Carter, Gerren Hinds Survey, has been temporarily abandoned at 2,670 feet. D. F. Bryan's No. 1 Davis, G. Hinds Survey, location has been abandoned. Guerrin & Gastor's No. 1 Devilla, Isaac Weldon, location has been abandoned. Humble Oil & Refining Co.'s No. 6-A Moses & Baggett, Gerren Hinds Survey, location, has been abandoned. C. E. Lange's No. 2 W. P. Walker, G. Hinds Survey, has been abandoned at 1,500 feet. Stover & Mays No. 1 Bell, location in Luling Survey, Block 24, has been abandoned. Their No. 1 Edwards, location in Luling Survey, Block 5, has been abandoned. S. C. Wagley's No. 1 Gregg, A. Floyd Survey, location, has been abandoned.

Edwards County

McMan Oil & Gas Co.'s No. 1-B Walter Schreiner, H.E.&W.T.R.R. Survey, Section 50, Block F, has been abandoned dry at 3,897 feet.

Kleberg County

Humble Oil & Refining Co.'s No. 4

Plato, Section 40, Lot 10, has been abandoned dry at 4,810 feet.

Live Oak County

W. J. Walton's No. 3 C. H. Wedding has been temporarily abandoned.

Maverick County

Thomas Johnson's No. 1 Wipff has been abandoned at 900 feet. Rycade Oil Co.'s No. 3 Sullivan, Section 71, Block 7, has been abandoned at 5,542 feet.

Medina County

North & South Development Co.'s No. 1 Charles Nehr, Survey 441, has been abandoned at 3,512 feet temporarily.

Nueces County

Milam Drilling Co.'s No. 1 Ragland, southwest corner Lot 13, has been abandoned dry at 3,018 feet.

Webb County

W. O. Wheatley's No. 1 Wheatley, Survey 1,569, Block 3, has been abandoned dry at 2,805 feet. Marts & Beaven's No. 2 Johnson, Survey 602, Block 10, junked and abandoned hole at 1,790 feet.

NEW LOCATIONS

Atascosa County

Amphion Oil Co.'s No. 1 Sam Schlisser, Farm B of Arnold Farms, 300 feet to northeast lines and 600 feet to southeast lines is rigging up to drill 3,000 feet.

Caldwell County

Buchanan and others' No. 1 Trap Brisco, P. B. McCarley Survey, is location 330 feet to south and east lines. Humble Oil & Refining Co.'s No. 7 J. B. Tiller, Gerren Hinds Survey, 450 feet to west line and 150 feet to south line is moving in derrick material. Golden West Oil Co.'s No. 3 Malone, A. Floyd Survey, 450 feet to northwest lines and northeast lines is drilling at 150 feet. Gulf Production Co.'s No. 1 Graef, R. B. Jarmon Survey, is location 2,500 feet to west line and 150 feet to south line. Gulf Production Co.'s No. 3 W. O. Allen, Gerren Hinds Survey, is drilling at 664 feet in shale. Humble Oil & Refining Co.'s No. 6-A Moses & Baggett, Gerren Hinds Survey, is location 150 feet to east line and 1,158 feet to south line. Humble Oil & Refining Co.'s No. 1 Floyd Gray, James Hinds Survey, 350 feet to south line and west line is rigging up. Its No. 3 W. O. Allen, Gerren Hinds Survey, at 2,094 feet is drilling in shale and boulders.

Humble Oil & Refining Co.'s No. 3 J. J. Davis is going on the pump at 2,700 feet. Shell Petroleum Corp.'s No. 3 Floyd Tiller, Gerren Hinds Survey, at 2,745 feet is shut down for orders. Its No. 2-B Carter is shut down at 2,661 feet waiting for cement; No. 4 Moses is drilling at 2,578 feet in Del Rio with no chalk; and No. 5 Malone, A. Floyd Survey, 300 feet east of No. 1 and 150 feet to south line has derrick up.

Duval County

Humble Oil & Refining Co.'s No. 17 Kohler, Survey 399, is location 165 feet to north and west lines; its No. 18 Kohler is location; No. 19 Kohler, Survey 624, 165 feet to west line and north line is rigging up. S. & O. Oil Co.'s No. 2 Hahl, Survey 250, Block 22, is location 220 feet to north line and 960 feet to west line; No. 3 Hahl, Survey 250, Block 22, is location 220 feet to north line and 600 feet to west line.

Guadalupe County

Magnolia Petroleum Co.'s No. 9 W. R. Shanklin, Harriett Cottle Survey, is location in southwest corner.

San Patricio County

Spencer & Rhoades' No. 2 J. M. Bennett, A. S. Taft Survey, is location 900 feet to west line and 400 feet to south line.

Jim Hogg County

Randado Oil Corp.'s No. 33 Palacious, Survey 291, Block 15, located 150 feet to south line and 450 feet to west line, has sand at 1,276-82 feet. No. 34 Palacious, Survey 291, Block 3, 150 feet to north line and 1,050 feet to west line is drilling at 600 feet.

Webb County

Aviator Gas Co.'s No. 2 Bruni, Survey 2,063, is location 1,120 feet to east line and 1,170 feet to south line.

Humble Field—Duval

Humble Oil & Refining Co.'s No. 12 Kohler (Reiter-Foster) Survey 403, located 1,485 feet to south line and 165 feet to east line, is bailing at 1,820 feet; No. 13 Kohler, Survey 163, located 495 feet to east line and 165 feet to south line, is bailing at 1,747 feet; No. 14 Kohler, Survey 396, is location 495 feet to north and east lines; No. 15 Kohler, Survey 401, is location 825 feet to east line and 165 feet to north line; No. 16 Kohler, Survey 144, is location 165 feet to south and west lines; No. 17 Kohler, Survey 399, is location 165 feet to north and west lines.

Driscoll Field

Robert Driscoll's No. 14 Driscoll, Survey 448, located 2,750 feet to east line and 550 feet to south line, is drilling at 2,498 feet after testing small amount of oil and salt water at 2,490-95 feet.

Schoolfield-O'Byrne Pool

Magnolia Petroleum Co.'s No. 4-B Hahl, Survey 61, located 150 feet to south line and 2,481 feet to east line, has sand at 2,323-26 feet and set casing. S. & O. Oil Co.'s No. 2 Bowe, Survey 250, Block 21, located 220 feet to east line and 660 feet to south line, has sand at 2,321 feet. Onyx Oil Co.'s No. 4 Krauter, Survey 250, Block 20, located 220 feet to south and west lines, is drilling at 2,200 feet.

Randado Field—Jim Hogg

Magnolia Petroleum Co.'s No. 41 Merchants State Bank, Survey 415, located 150 feet to north and east lines, is drilling at 3,290 feet.

Henne-Winch & Fariss Field

A. L. Kitselman's No. 1 Lopez, Survey 255, Block 6, located 289 feet to north line and 300 feet to west line, is drilling at 250 feet. The Texas Company's No. 1 D. Vela, Survey 582, Share 4, located 1,300 feet to west line and 150 feet to south line, is rigging up.

Schott Field—Webb

Livingston & Payne's No. 1 Guerra-Ochoa, Survey 58, located 917 feet to east line and 497 feet to south line, is moving on.

Reiser Field

Marts & Beaven's No. 2 Johnson, Survey 602, Block 10, located 150 feet to south and west lines, at 1,790 feet is fishing for bit. W. O. Wheatley's (R. C. Holsworth) No. 1 Wheatley, Survey 1,569, Block 3, located 847.7 feet to north line and 305.2 feet to east line, is drilling at 2,768 feet.

Albercas Field

Sun Oil Co.'s No. 12-A Yeager-Strohman, Share 5, located 4,675 feet to north line and 150 feet to west line, has sand at 2,153-55 feet and is standing. Magnolia Petroleum Co.'s No. 14 Yeager-Strohman, Share 5, located 1,400 feet to north line and 575 feet to east line, has sand at 2,162-66 feet and has set casing; No. 15 Yeager-Strohman, Share 5, located 900 feet to north line and 575 feet to east line, has derrick up.

Rycade Oil Corp.'s No. 8 Yeager-Strohman, Share 5, located 1,950 feet to north line and 150 feet to east line, is standing at 2,145 feet with casing set at 2,137 feet. A. M. Major's No. 1 Holbien, Share 3, Block 6, located 150 feet to north and east lines, is location. Edwards St. Albans' No. 4 Holbien, Share 3, Block 7, located 150 feet to north and west lines, is losing returns since 1,620 feet, drilling at 1,770 feet. Newton Drilling Co.'s No. 4 Bruni, Block 56, Newton tract, 480 feet to north line and 250 feet to west line, is drilling at 2,000 feet.

Carolina-Texas Field

C. R. Miller's (Miller-Daniels) No. 1 de la Garza, Survey 48, Block 47, located 150 feet to north and east lines, has resumed drilling at 2,250 feet. W. R. Shankle's No. 1 Webster, NE SE Survey 684, located 150 feet to south and west lines, is drilling at 2,750 feet. The Texas Company's No. 1 Benavides, NW SE Survey 683, located 150 feet to north and west lines, is moving on.

Andrews Field

Watson and others' (Dosner-Danmier) No. 2 G. Benavides, Survey 11, Block 14, located 150 feet to southeast lines and southwest lines, has been spudded in.

Magnolia-Cole Field

Cole Petroleum Co.'s No. 67 Benavides, Survey 412, Block 12, located 313 feet to east line and 160 feet to north line, is standing at 38 feet. Houston Oil Co.'s No. 4-D Benavides, Survey 753, Block 13, is location 160 feet to south line and 822.5 feet to east line; No. 17-D Benavides, Survey 753, Block 5, is location 160 feet to south and west lines; No. 19-D Benavides, Survey 753, Block 5, is location 660 feet to east line and 160 feet to south line, is drilling at 150 feet; No. 1-G Benavides, west one-half, SE Survey 701, located 160 feet to south and east lines, has sand at 2,294-2,304 feet and is testing.

Magnolia Petroleum Co.'s No. 1 Benavides, Survey 697, Block 10, is location 150 feet to north and east lines; No. 1 King-Benavides, Survey 694, Block 12, is location 150 feet to south and east lines; No. 1 J. G. Valdez, Survey 754, Block 15, is location 150 feet to south and west lines. Union Exploration Co.'s No. 1 Benavides, Survey 694, Block 3, located 150 feet to south and west lines, is drilling at 2,000 feet.

Cole Gas Field

O. W. Killam's No. 4 (L) Bruni, Survey 5, Block 2, located 150 feet to northwest lines and northeast lines, is drilling water well which at 512 feet tested about 2,000,000 feet of gas; No. 5 Bruni, Survey 8, Block 26, located 203 feet to southwest lines and 270 feet to northwest lines, has sand at 2,317 feet showing oil. J. G. Mackay's No. 1 Richardson, Survey 5, located 150 feet to north and west lines, is moving on.

Jennings Field—Zapata

Charles L. McCaslin's No. 1 R. Hinnant, Survey 74, located 2,390 feet to west line and 630 feet to south line, has sand at 1,442-47 feet and is running tester. Killam-Duggan's No. 4 ———, Cerrito Blanco grant, 1,511 feet to northeast lines and 627 feet to northwest lines, has sand at 1,467-73 feet and is standing.

Somerset Field—Atascosa

W. R. Hamilton's No. 14 R. T. Hughes, J. Sharp Survey No. 518, located 565 feet south of No. 6, is location.

Yoast Field—Bastrop

Judge Batts' No. 1 White is at 2,100 feet, 22 feet of dry Serpentine, 100 feet in chalk, and will drill to Edwards. Cranfill & Reynold's No. 1 C. R. Daywood, Addison Litton Survey, 450 feet to NW cor., is drilling at 1,925 feet. Gulf Production Co.'s No. 2 Yoast, A. Garcia Survey, is location 300 feet east of No. 1; No. 1 Yoast, A. Garcia Survey, located 1,593 feet to northwest lines and 150 feet to northeast lines, at 1,462 feet has given test a light shot. The Texas Company's No. 2 Yoast, A. Garcia Survey, is location, 150 feet to northwest and southwest lines of lease; No. 3 Yoast, A. Garcia Survey, is location 150 feet to northwest lines and 450 feet to southwest lines.

Somerset Field—Bexar

Schimmel Production Corp.'s No. 1 J. Frees, C.E.I.P.&M. Survey, Block 2, is location 250 feet to east line and 829 feet to south line.

Dobrowolski Field

F. H. Eckert's No. 3 Dobrowolski, Section 52, Block 4, is location 300 feet south of No. 1 and is drilling at 300 feet in rock.

Gas Ridge Pool

Medio Oil Co.'s No. 9 Cohen, 500 feet SE of No. 7, is at 470 feet.

Bruner (Salt Flats) Field—Caldwell

W. R. Alexander's No. 1 G. W. New, James Hinds Survey, 300 feet to west line, is drilling at 2,280 feet. Tips de Armond's No. 2 Carter, Gerren Hinds Survey, 170 feet to west line and 147 feet to north line, is drilling at 1,005 feet, showing some gas. J. J. Capps' No. 1 G. W. New, James Hinds Survey, is drilling at 2,543 feet in Eagleford topped at 2,535 feet, core in Austin chalk at 2,525-34 feet showed oil. Cranfill & Reynolds' No. 1 Northcoot, J. Radford Survey, 150 feet to northeast and southeast lines, is drilling at 1,000 feet in shale.

C. E. Ellsey's No. 1 Taylor is standing at 42 feet. Gulf Production Co.'s No. 2 W. O. Allen, Gerren Hinds Survey, 450 feet to west line and 173 feet to south line, is drilling at 2,232 feet in Taylor marl; No. 2 Carter, Gerren Hinds Survey, 450 feet to east line and 150 feet to north line, is rigging up; No. 3 R. W. Carter, Gerren Hinds Survey, 150 feet to south and west lines, is drilling at 1,550 feet in sticky shale; No. 4 R. W. Carter, Gerren Hinds Survey, 450 feet to west line and 150 feet to south

Write for location of stocks

Macwhyte Company
2916 Fourteenth Avenue
Kenosha, Wisconsin

line, is drilling at 2,394 feet in chalk topped at 2,193 feet with oil on ditch.

No. 4 J. J. Davis, A. Floyd Survey, 150 feet to east line, is drilling at 1,034 feet; No. 1 M. J. Tiller, Gerren Hinds Survey, 150 feet to NE cor. and 150 feet to north line, is drilling at 2,247 feet in Taylor marl; No. 2 M. J. Tiller, Gerren Hinds Survey, 300 feet west of No. 1, is drilling at 2,377 feet; No. 3 M. J. Tiller, Gerren Hinds Survey, 300 feet west of No. 2 and 150 feet to north line, is drilling at 21 feet; No. 4 M. J. Tiller, Gerren Hinds Survey, 150 feet to south line and 275 feet to west line, is drilling at 1,875 feet in gumbo; No. 5 M. J. Tiller, Gerren Hinds Survey, 575 feet to west line and 150 feet to south line, is drilling at 2,409 feet in chalk, showed oil on ditch at 2,226 feet in top of the formation.

No. 1 J. D. Wright, Gerren Hinds Survey, 450 feet to south line and 150 feet to west line, has been spudded in. Humble Oil & Refining Co.'s No. 2 W. O. Allen, is at 2,693 feet in Edwards topped at 2,690 feet and reaming to set casing at 2,687 feet; No. 4 W. O. Allen, Gerren Hinds Survey, 300 feet east of No. 2 and 150 feet to north line, is at 1,415 feet in shale and boulders; No. 5 W. O. Allen, Gerren Hinds Survey, 431 feet to north line and 760 feet to west line, is drilling at 2,416 feet in chalk topped at 2,265 feet; No. 6 W. O. Allen, Gerren Hinds Survey, 150 feet to north line and 868 feet to south line, is in shale at 1,960 feet.

No. 2-A Moses & Baggett is drilling at 2,584 feet in Georgetown; No. 3-A Moses & Baggett, 300 feet north of No. 2, is drilling at 2,152 feet; No. 4-A Moses & Baggett, 300 feet west of No. 1, has derrick up; No. 5-A Moses & Baggett, Gerren Hinds Survey, 804 feet to south line and 150 feet to east line, is drilling at 957 feet in shale; No. 1-B Moses & Baggett, Samuel Shupe Survey, 150 feet to south line and 695 feet to east line, is drilling at 692 feet in shale; No. 5 J. B. Tiller, Gerren Hinds Survey, 300 feet east of No. 2 and 150 feet to north line, is drilling at 2,305 feet in chalk; No. 6 J. B. Tiller, Gerren Hinds Survey, 150 feet to north line and 750 feet to west line, is drilling at 1,651 feet in shale.

No. 4 J. J. Davis, A. Floyd Survey, 300 feet north of No. 2 and 150 feet to east line, is drilling at 242 feet; No. 2 Floyd Tiller, Gerren Hinds Survey, is location 150 feet to north and west lines. C. E. Lange's No. 1 Kate Colding, A. Floyd Survey, 150 feet to northwest lines and 112 feet to northeast lines, at 2,716 feet is waiting for pump. No. 1 W. P. Walker, Gerren Hinds Survey, 150 feet to north and west lines, at 2,772 feet plugged back and will try to make a well in Austin chalk, casing set at 2,249 feet. Luling Oil & Gas Co.'s No. 3 Carter is standing at 2,918 feet.

William F. Morgan's No. 1 C. Malone, A. Floyd Survey, 150 feet to north and west lines, is drilling at 958 feet. Speer Well Oil Co.'s No. 1 E. L. Mayton, Hector McNeil Survey, in center of survey, is sidetracking at 2,810 feet. H. C. Ratcliff and others' No. 1 Cora Malone, A. Floyd Survey, 150 feet to north and west lines, is standing at 2,694 feet. Shell Petroleum Corp.'s No. 1-B Carter, Gerren Hinds Survey, 150 feet to south and west lines, has derrick up; No. R. W. Malone, A. Floyd Survey, 150 feet to C NE lines, is drilling at 2,706 feet in Edwards topped at 2,698 feet and swabbed and bailed considerable oil at 2,660 feet; No. 3 Moses, A. Floyd Survey, 150 feet to south line and 450 feet to east line, is at 2,706 feet and is rigging up to pump.

No. 3 W. L. Smith, A. Floyd Survey, 150 feet to south and east lines, is at 2,695 feet; No. 2 Floyd Tiller, Gerren Hinds Survey, 450 feet to east line and 150 feet to north line, has set casing at 53 feet; No. 4 Floyd Tiller, 300 feet west of No. 2, is drilling at 2,100 feet; No. 5 Floyd Tiller, 300 feet west of No. 4, is drilling at 665 feet in shale and boulders; No. 6 Floyd Tiller, Gerren Hinds Survey, 300 feet west of No. 3, 150 feet to south line and 1,050 feet to west line, is drilling at 880 feet in sticky shale.

Sun Oil Co.'s No. 5 Malone, A. Floyd Survey, 150 feet to southwest lines and 1,486 feet to northwest lines, at 2,280 feet set and cemented casing. The Texas Company's No. 1 Carter, Gerren Hinds Survey, is location 150 feet to south and east lines; No. 5 Merriweather, A. Floyd Survey, 150 feet to northeast and southeast lines, has derrick up; No. 6 Merriweather, A. Floyd Survey, 150 feet to northwest lines and 70 feet feet to northeast lines, is standing at 2,742 feet. Turman & Brown's No. 1 Beversdorff, A. Floyd Survey, is location 150 feet to southeast lines and 131 feet to southwest lines. Victor Oil Co.'s No. 1 Briscoe, P. B. McCrealy Survey, is location 150 feet to south line and 150 feet west of the road.

Sullivan Field—Gonzales

Cranfill & Reynolds' No. 1 J. F. Webb, Winslow Turner Survey, 150 feet to north and east lines and south offset to discovery well, is drilling at 3,850 feet in top of chalk topped at 3,802 feet and is dry. Empire Gas & Fuel Co.'s No. 1 River Bed, Winslow Turner Survey, 133 feet to north line and 10 feet to east line and southwest of discovery well, is moving in rig.

Indian Petroleum Co.'s No. 1 L. F. Karnstadt, Lot 5, located 450 feet to north line and 150 feet to north line, has spudded in and set surface casing. The Texas Company's No. 1 J. E. Lamkin, Winslow Turner Survey, is location 800 feet to northwest lines and 200 feet to southwest lines of the lease.

Luling Field—Guadalupe

A. B. A. Oil Co.'s No. 4 Britton Harris is shut down at 1,250 feet for repairs on boilers. Magnolia Petroleum Co.'s No. 2 H. A. Cartier, Harriett Cottle Survey, 450 feet to northeast lines and 150 feet to northwest lines, is drilling at 1,910 feet.

Kingsville Field—Kleberg

Humble Oil Refining Co.'s No. 4 Flato, Section 40, Lot 10, located 250 feet to east line and 450 feet to north line, is drilling at 4,747 feet.

Cartwright Field—Live Oak

Houston Oil Co.'s No. 1-A Brown Land & Cattle Co., M. B. Kivlin grant, is location.

Agua Dulce Field—Nueces

Agua Dulce Oil & Gas Co.'s No. 1 B. F. Wolcott, Section 1, located 150 feet to south line of section and 2,780 feet to east line, has set and cemented casing at 2,020 feet. R. & G. Corp.'s No. 1 Brown, George H. Paul Subdivision, Section 87, is location; No. 2 Ed Allen, Lot 5, Section 6, is location about 1,900 feet east of No. 1; No. 1 Yakey, Lot 2, Section 5, located 150 feet to west line and in center north and south, has set and cemented casing at 2,018 feet.

Saxet Field

Saxet Gas Co.'s No. 5 Dunn is location 1,500 feet southwest of No. 1 Dunn, discovery well of the field.

Refugio Field—Refugio

Houston Oil Co.'s No. 5 Wilson Heard, 300 feet west of No. 4, is drilling; No. 1 Blanco River is location. Houston Gulf Gas Co.'s No. 4 J. M. O'Brien, Survey 4, at 2,420 feet had gas blowout, damaged derrick but now shut in; No. 1 Fox is drilling at 3,900 feet; No. 3 Fox, Lot 4, Block 5, at 3,300 feet is trying to get of the bottom. Mission Drilling Co.'s No. 3 Rogers estate is rigging up.

No. 1 Nellie B. Cummins at 3,800 feet came in flowing through one seven-eighths inch choke and one 1-inch choke, estimated from 500 to 700 bbls. oil, no water. William F. Morgan's No. 1 Rooke is drilling at 5,000 feet. Union Exploration Co.'s No. 1 Rooke is drilling at 2,800 feet; No. 1 Holmes Heard, Tract 3, Block 8, is at 3,720 feet and has pulled screen to drill deeper. Union Exploration Co.- William F. Morgan's No. 2 Leslie Adkins, Block 8, is standing at 3,786 feet.

GULF COAST FIELDS

(Continued from Page 51)

This company is rigged up for No. 4-B Whitehead on the north side. Anderson & Plummer's No. 2 Whitehead on the north side, a former well being deepened, is sidetracking at 3,724 feet.

Nash Dome—Fort Bend County

Rycade Oil Corp.'s No. 24 Wisdom tested salt water at a total depth of 4,328 feet and is to be deepened. No. 21 Wisdom also is in a sand showing oil at 4,260-71 feet and is waiting cement to set before drilling in. Rycade and Humble Oil & Refining Co.'s joint No. 1 Wisdom, 800 feet south of operations on the south side of the dome, is drilling plug at 5,408 feet.

Big Creek—Fort Bend County

The Texas Company's No. 4 Wheat is fishing stuck drill stem. Total depth of the hole is 3,643 feet in sand and shale. Gulf Production Co.'s No. 51 Davis is drilling gumbo and lime at 3,231 feet. No. 15 Davis, a workover, is drilling at 2,674 feet.

Blue Ridge—Fort Bend County

Navarro Oil Co.'s No. 4-A Robinson on the west side of the dome was testing a sand showing oil at 4,068 feet Saturday. This is a former well deepened from 3,509 feet. Telshaw and associates' No. 2 Blakely, on the north side, is standing with casing cemented at 2,710 feet to test an oil sand. Bottom of the hole is at 2,760 feet.

South Texas Petroleum Co.'s No. 3 Lafferty on the east side of the dome also was standing with casing cemented to test an oil sand at 3,245-55 feet.

Humphreys Corp.'s No. 5 West-Schenck, south flank, is drilling sandy shale at 3,836 feet. Moody Corp.'s No. 6 West-Schenck is drilling at 1,975 feet.

Spindletop—Jefferson County

Gulf Production Co.'s No. 17 Marrs McLean in testing a sandy shale at 5,436 feet is bailing considerable fluid showing mostly salt water but some oil. Unity Oil Co. has rigged up for No. 99 McFaddin in the heart of the field and is drilling gumbo at 628 feet.

Yount Lee Oil Co.'s No. 53 McFaddin is drilling sand and shale at 5,025 feet. No. 90 McFaddin is fishing at 3,102 feet. No. 91 McFaddin is drilling sand and lime at 3,831 feet. No. 93 McFaddin is drilling sand and shale at 2,825 feet. No. 94 is drilling rock at 905 feet. This company's No. 4 Davis is drilling sand at 3,906 feet, and No. 23 fee is in sand and shale at 3,826 feet.

Yount Lee Oil Co.'s No. 74 Gladys City is drilling shale at 4,427 feet. No. 76 is drilling shale and lime at 3,900 feet and No. 79 is drilling gumbo at 929 feet. No. 75 was abandoned at 3,124 feet.

Hardin County Domes

At Saratoga, Rio Bravo Oil Co.'s No. 106 B.B.B.&C. is drilling gumbo at 1,969 feet. E. W. Skinner's No. 2 Sissler is drilling at 724 feet. Ada Belle Oil Co.'s No. 125 McGoldrick Stateland, Batson, is down 881 feet and should be in the shallow sand soon. East Batson Oil Co.'s No. 18 Stateland, Batson, is rigging up.

Goose Creek—Harris County

Humble Oil & Refining Co. has completed rigging up for its No. 75 Simms Smith, a deep wildcat test northwest of the field. Atlantic Oil Producing Co.'s No. 20 Gaillard (21 acres) is drilling below 2,699 feet. Gulf Production Co.'s No. 8 Gaillard fee is rigging up to pump. It is an old well worked over. This company also has a rig up for No. 15 Beaumont Petroleum Co.

Hull—Liberty County

Empire Gas & Fuel Co.'s No. 17 Barngrover, an old well deepened to 3,774 feet, tested salt water and is pulling strainer to deepen. Gulf Production Co.'s No. 92 Phoenix is rigging up to pump from a sand at 3,189 feet. This company's No. 25 Morris-Phillips is drilling below 2,803 feet. Mecom Oil Co.'s No. 10 Taylor is drilling at 904 feet. Republic Production Co.'s No. 32 Dolbear is drilling at 2,189 feet. No. 37 Dolbear is drilling below 2,653 feet.

South Liberty—Liberty County

Empire Gas & Fuel Co.'s No. 1 Goggan, just northeast of Liberty Petroleum Co.'s shallow wildcat producer completed several months ago, drilled into salt and has been abandoned at 3,400 feet. Brownie-Babbette Oil Co. is building derrick for No. 1 Turner.

In the newer shallow sand pool, operations have slackened up materially with Gulf Production Co. entirely out of the picture for the time being as far as drilling is concerned. Sun Oil Co.'s No. 36 Mitchell went into salt at 1,285 feet but has plugged to 1,152 feet to test. No. 39 Mitchell is drilling sand and sh at 873 feet. No. 37 is rigging up. T Texas Company's No. 18 Staiti is dri ing gumbo at 1,244 feet. No. 19 Sta is drilling sticky shale at 1,908 feet.

In the flank sand on the east, Yo Lee Oil Co.'s No. 15 Mitchell is drill shale and lime at 920 feet. Sun Co.'s No. 38 Mitchell is drilling gum at 1,812 feet. Navarro Oil Co.'s No Baldwin is drilling rock at 1,383 feet.

On the north side of the dome, T Texas Company's No. 3 Pickett is dri ing gumbo and shale at 3,645 feet. 5 Green is standing as a location. V uum Oil Co.'s No. 1 Trinity River drilling water sand at 2,863 feet. Tu bull and associates' No. 1 Bennett drilling gumbo at 613 feet.

SOUTH LOUISIANA

Hackberry—Cameron Parish

Cameron Oil Co. and Rycade Corp.'s No. 3 Duhon on the south side the dome and on the same tract on whi the discovery well of the old Hackber Dome was found over a month ag spudded in Saturday. Federal Petrole Co. has made location for its No. Kaough, which is reported to be 143 fe west of Sutton, Seiss and Green's No Sonnier, completed the past week as th second producer on the old Hackber Dome. The latter operators also ha made location for No. 2. Yount Lee Co.'s No. 1 Vincent is drilling shale 3,750 feet. This company's No. 1 Pe kins was abandoned in heaving shale 4,446 feet. Noble and associates' al have abandoned their No. 3 Ellender heaving shale at 3,856 feet.

Rycade Oil Corp.'s No. 1 Gulf La the latter part of the week flowed heads at the rate of 100 bbls. of fluid 50 per cent wash water. The wash pip was pulled and the hole bailed but th well would not flow steadily and wi be put on the pump. Sun Oil Co. also i rigging up for No. 1 Sonnier.

On the East Hackberry Dome, Cal casieu Oil Co.'s No. 13 Watkins is drill ing sand at 3,259 feet. The latter com pany's No. 5 Dorion is drilling shale an boulders.

Lockport—Calcasieu Parish

Vacuum Oil Co. was drilling plug Saturday in its No. 1 Henshaw-Lemoin the casing being cemented at 5,597 feet. This company's No. 22-A Miller was bailed dry in a test of a shallow sand at 1,163 feet and has been deepened to 1,169 feet where casing has been cemented. No. 13 Miller is sidetracking. No. 23 Miller is drilling shale at 4,33 feet. No. 24 is building a derrick. No 4-A Farquahar is drilling sandy shale at 4,776 feet. No. 5 Bayou De'Inde is standing as a derrick. Shell Petroleum Co.'s No. 1 Miller is standing rigged.

Jennings—Acadia Parish

E. F. Simms' No. 1 Grace Von Schuler, west side deep test, is sidetracking stuck drill stem after going to a total depth of 5,180 feet in hard sand. This operator's No. 1 Syndicate-Clemont is sidetracking at 3,300 feet to go back to a sand at 3,872 feet. No. 2 Ernest Cockrell is drilling sticky shale at 2,816 feet. Jennings Petroleum Co.'s No. 2 Eunice-Crowley is pulling strainer to deepen after testing salt water at 3,772 feet. Gulf Refining Co.'s No. 36 Jennings-Clemont is drilling shale at 3,012 feet.

On the east side, The Texas Company's No. 107-A Latrielle was bailing late in the week to test a sand at 1,757 feet. Yount Lee Oil Co.'s No. 6 Housierre-Latrielle is drilling shale and lime at 5,776 feet. This company's No. 4 Crowley is in sand and shale at 3,350 feet.

Edgerly—Calcasieu Parish

Drysdale & Savoy's No. 3 Hill is being rigged up to pump from sand at 3,147 feet. Rex Petroleum Co.'s No. 9 Hunter still is pulling strainer at 3,460 feet to deepen. Wilson-Broach's No. 2 Wilson is bailing to test at 3,479 feet.

Miscellaneous Fields

Rycade Oil Co. and Humble Oil & Refining Co.'s No. 4 Hudson, Markham, Matagorda County, has been abandoned in heaving shale at 3,581 feet. Gulf Production Co.'s No. 18 Moore, Orchard, Fort Bend County, is drilling hard shale at 2,561 feet. Gulf Production Co.'s No. 3 Tom Hogg, West Columbia,

Brazoria County, a former producer, is pulling strainer to deepen.

Yount Lee Oil Co.'s No. 4 Louisiana Petroleum Co., Anse La Butte, St. Martin Parish, is drilling sand and shale at 2,500 feet. Rycade Oil Corp.'s No. 3 Atchafalaya fee, Bayou Bouillon, is drilling salt at 4,811 feet. This company's No. 6 Bouillon fee, same field, is waiting casing cement to set to test an oil sand at a total depth of 2,888 feet. No. 7 Bouillon fee is building derrick and No. 8 Bouillon fee has spudded in. No. 3 Louisiana State is drilling gravel at 355 feet. Pure Oil Co.'s No. 7 Yount Lee Oil Co. is running liner to retest sand at 4,594 feet. No. 8 is reaming to bottom, which is at 4,475 feet.

MISCELLANEOUS WILDCATS

Texas

Brazoria County — Shell Petroleum Corp.'s No. 3 Reece, Allen Dome, is drilling brittle shale and pyrites at 4,308 feet. No. 5 Allen, same dome, is drilling lime rock at 4,840 feet. Empire Gas & Fuel Co.'s No. 2 Brock, Stratton Ridge, is drilling gumbo at 3,250 feet.

Chambers County—Pure Oil Co.'s No. 2 Lost Lake, Lost Lake Dome, is drilling sand and shale showing oil at 3,565 feet. This company's No. 1 Mays, same dome, is at a total depth of 1,207 feet, setting a string of 12½-inch casing. Gulf Production Co.'s No. 1 Wilborn, Hankamer is drilling at 4,430 feet in shale and lime.

Fort Bend County—South Texas Petroleum Co.'s No. 1 Hartfield, Needville, is drilling a broken formation at 5,396 feet.

Galveston County—Republic Production Co.'s No. 1 Lobit, Dickinson, is drilling shale and lime at 4,068 feet.

Harris County—Humble Oil & Refining Co.'s No. 1 Minnetex, Mykawa, is drilling shale at 5,487 feet. This company's No. 5 Warren at Hockley is drilling shale and lime at 2,085 feet. South Texas Petroleum Co.'s No. 1 Hicks & Higbee, Alemeda, is drilling hard sand and shale at 3,368 feet. All other tests in the county are shut down.

Jackson County—The Texas Company's No. 1 Moore, D.&G.N. Survey No. 311, north of Edna, is drilling shale at 3,223 feet. Wright Brothers' No. 2 Classen, Edna, has drilled to 3,946 feet in shale but is shut down. No. 8 Drushell is a derrick.

Jefferson County—The Texas Company's No. 1 Pipkin, Big Hill, is drilling sticky shale and sand at 4,525 feet. Yount Lee Oil Co.'s No. 1 Nona Mills, Hillebrandt Survey, is in gumbo at 850 feet, where surface casing has been set. Gulf Production Co.'s No. 6-A Bordages, Fannette, is drilling at 4,956 feet. The latter, the discovery well of the field, is drilling deeper. Gulf also is rigging up for No. 11 Thomas, and is building derrick for No. 7 Bordages, both at Fannette. Vacuum Oil Co. has a location for its first test on a new salt dome prospect in the T.&N.O. Survey No. 820, Section 208, in the southern part of the county but difficulty in getting material into the location will delay building a derrick. The well will be No. 1 Herbert-Broussard. Westbury Syndicate's No. 1 West, northeast of Westbury, is drilling at 2,658 feet. River Oil Corp.'s No. 1 Ship Channel, Brown Survey, southeast of Beaumont, is drilling gumbo at 783 feet. I. W. Farhar and associates' No. 1 Rohwedder, 5 miles northeast of Beaumont, is drilling at 3,100 feet. Bleakie Oil Co.'s No. 1 Tolliver, northeast of Westbury, is in sand at 1,574 feet.

Liberty County—Humble Oil & Refining Co.'s No. 3 Sterling, Moss Bluff, is drilling salt at 3,314 feet. The Texas Company's No. 2 Davis, Davis Hill, is drilling hard shale at 976 feet. Union Exploration Co.'s No. 2 Esperson, Fisher Survey, is drilling hard gumbo at 2,538 feet.

Matagorda County—Crossland and associates' No. 1 Murphy, Shepherds Mott, is drilling rock at 3,378 feet. Griffith and associates' No. 1 Culver, Citrus Grove, is drilling gumbo at 1,747 feet.

Orange County—The Texas Company has spudded in on its wildcat, No. 1 Kuhn, northeast of Port Neches. Because of the marsh soil, surface casing, 16-inch, has been set at 93 feet.

Waller County—The Texas Company's No. 1 Young is rigged up.

Washington County—Sun Oil Co. has abandoned its No. 1 L. Marcus and its No. 1 Einman in the Clay Creek Field. The former was dry at 3,640 feet and the latter showed salt water at 1,875 feet, to which depth it was plugged after drilling to 2,677 feet. Sun has started drilling in its No. 2 J. Grote and at last report was drilling surface formation at 170 feet. A derrick is up for No. 4 G. F. Grote, and locations have been made for Nos. 5 and 6 G. F. Grote, No. 2 Witt, No. 1 Carraway. A derrick is up for No. 2 C. Einman.

Wharton County—Hearte and associates' No. 1 Brown, south of El Campo, is drilling sand at 1,964 feet.

South Louisiana

Ascension Parish—All tests in Ascension Parish are standing with the exception of Gulf Refining Co.'s No. 11 United Land Co. at Sorrento Dome.

Cameron Parish — Shell Petroleum Corp.'s No. 6 Watkins, Black Bayou, is drilling in a gray sand at 3,003 feet. No. 7 Watkins, same dome, is in cap rock at 936-40 feet and will be abandoned as far as oil is concerned although the cap rock area will probably be developed for sulphur.

Iberia Parish—The Texas Company's No. 3-A Vermillion Bay is drilling rock at 4,175 feet. Jefferson Lake Oil Co.'s No. 1 Lake Peigneur, Jefferson Island, is drilling hard sandy lime rock.

Iberville Parish — Shell Petroleum Corp.'s No. 3 Wilbert, White Castle, is drilling blue shale and lime at 3,615 feet.

Jefferson Davis Parish—Vacuum Oil Co. is spudding in on its second test on the Roanoke Dome. This is No. 1 Earle, 3,680 feet west of No. 1 DeVilbiss, which is drilling in water sand at 4,800 feet.

Miscellaneous Parishes — Evangeline Oil Co.'s No. 1 Crowell-Spencer, Pine Prairie, Evangeline Parish, is drilling rock at 4,760 feet. The Texas Company's No. 1 Botney Bay, Port Barre, St. Landry Parish, is standing with casing cemented at 3,705 feet. It will test an oil showing sand at a total depth of 3,763 feet. Locations made by The Texas Company and the Gulf Refining Co. on new dome prospects in Terrebonne and Plaquemine Parishes are standing.

SOUTHWEST WILDCATS

(Continued from Page 46)

drilling at 5,130 feet. O. Henry Oil Co.'s No. 1 Henry, Block 1,879, Mesquite grant, 450 feet to southeast lines and 220 feet to northeast lines, is drilling at 1,640 feet. W. F. Morgan's No. 1 Welder-Woods, Survey 102, located 2,725 feet to east line and 75 feet to south line, is drilling at 900 feet.

Webb County

Edouard Raymond's No. 1 Schmellzer, Share 2, J. Galan grant, Brewster Pasture, is moving on. G. S. Lumpkin's No. 1 H. Yeager, Porcion 33-34-35, Block 17, is location 1,170 feet to east line and 150 feet to south line. L. W. Nelson's No. 1 Moglia, Survey 672, located 150 feet to east line and 2,584 feet to south line, is moving on.

Zapata County

National Oil Co.'s No. 1 Don B. Adams, Share 11, Block 4, is rigging up. John Pappas' No. 1 Cuellar, Porcion 33-34, Block 5, located 333 feet to northeast lines and 194 feet to southeast lines is drilling at 90 feet.

Bastrop County

Gypsy Producing Co.'s No. 1 Lottman estate is resuming drilling at 2,320 feet. Billy Mayfield's No. 2 McColl, Stephen F. Austin Survey, 50 yards west of No. 1, is shut down at 1,010 feet.

Bexar County

Allen Burnam's No. 1 Ward, southwest of Martinez, is drilling at 1,600 feet. Dixie Oil Co.'s No. 1 Medina Irrigation Co., William Miller Survey No. 180, located 1,666 feet to north line and 470 feet to west line, spudded in and shut down. Gulf Production Co.'s No. 1 F. Gutz, M. F. Rodriguez Survey No. 3, located 150 feet to north and west lines, is drilling at 1,340 feet in sticky shale. Humble Oil & Refining Co.'s No. 2 Oppenheimer, J. M. Urriegas Survey, 300 feet north of No. 1, is drilling at 2,284 feet. Indian Creek Oil & Gas Co.'s No. 1 W. Wolfsohl, J. A. Navarro Survey No. 5, located 180 feet to CEL, is moving in heavier rig to drill to Edwards lime. William M. Morgan's No. 1 E. S. Bridge, 8 miles southeast of San Antonio, is shut down at 800 feet with slight oil showing at 600 feet. Moore-Jauer's No. 1 Holly R. Ellison, T. York Survey, 2,916 feet to east line and 1,500 feet to south line, is underreaming casing at 383 feet. B. L. Raborn's No. 1 Engelmann, John James Survey No. 73, located 300 feet to south line and 600 feet to east line, has resumed work at 1,715 feet.

Bee County

Hurador Oil Co.'s No. 1 G. A. Ray, Pierce Miller Survey, at 2,837 feet gas pressure has built up to 1,100 pounds closed in and goes down to 900 feet after being opened where it remains and test is counted a good gas well.

Blanco County

C. W. Bates' No. 1 Herman Massey, Henry Manton Survey, 920 feet to north line and 660 feet to east line, is standing at 214 feet. Robert A. Rodson's No. 1 Glasscock, Survey 50, located 150 feet to CEL, is standing at 962 feet with oil in the hole.

Brooks County

Ed H. East's No. 1 B. Garcia, Block 13, Las Mestena grant, 400 feet to east and north lines, is moving on.

Caldwell County

George B. Walker and associates' No. 1 L. H. Lynch, Dorothy Benton Survey, 300 feet to south and west lines, is in Edwards at 2,290 feet. Whittington and others' No. 1 J. G. Horner, Francis Berry Survey, is drilling at 540 feet.

Calhoun County

B. F. Thompson's No. 1 Thomas, John P. Tulley Survey, 910 varas north 5 minutes 30 seconds west of north corner of John C. Post Survey, is drilling at 2,390 feet.

Colorado County

National Oil Co.'s No. 1 H. T. Brandt, Freeman Pettus League, is location 150 feet to south line and 1,000 feet west of the highway. Shell Petroleum Corp.'s No. 1 Neuendorff, J. Brod Survey, is location 500 feet to east line and 200 feet to south line.

Edwards County

A. M. Griffith's No. 1 Wardlaw, Section 60, J. S. Clift Survey, Block V-S, located 1,050 feet to west line and 150 feet to south line, has spudded in.

Frio County

Austin Johnson and others' No. 1 Eschenburg, E. Gallagher Survey No. 788, is location 1,250 feet to east line and 1,625 feet to south line. Pilgrim Oil Co.'s No. 2 Blackaller, James Gouley Survey, is standing at 3,218 feet trying to get contract depth completed.

Fayette County

Marshall & Moore's No. 1 John A. Kerr, M. Muldoon League No. 5, located about 250 varas to north line of lease and little west of center, is shut down at 2,078 feet. Merritt and others' No. 1 Zvereck is drilling at 325 feet. National Oil Co.'s No. 1 J. C. Melcher, S. M. Williams League No. 1, located 300 feet to north and east lines, is drilling at 1,400 feet. R. E. Phalon's No. 1 Cervenka, Fayette County School Lands, is shut down at 3,200 feet.

Goliad County

J. E. Alexander's No. 1 A. Frommie, is location 10 miles north of Goliad. Booth McCarson's No. 1 Murray, Goliad Survey No. 3, is location 200 feet to west line and 150 feet to north line.

Gonzales County

Alexander & Smith's No. 1 Billings, G. Gwinn Survey, NW cor., has derrick up and part of rig on the ground. Joe Bruner's No. 1 Miller, Richard Heath Survey, 3,040 feet to north line and 200 feet to east line, is preparing to resume drilling. Dunning & Pierce's No. 1 Keepers, R. Ward Survey, is standing at 203 feet. W. G. Flynn's No. 1 Wilhausen, S. Bateman Survey, east central part, is drilling at 5,012 feet. W. G. Malone's No. 1 Staton, J. M. Salinas Survey, 375 feet to southwest lines and 1,275 feet to northwest lines, is shut down at 400 feet. L. P. Unkel's No. 1 Lumm & Bouldin, R. Ward Survey, Block 10, located 570 feet to CSL, is moving back rig to resume drilling at 380 feet.

Guadalupe County

Pat Armstrong's No. 1 Halm, Wakefield Survey, has been tied up by leases and is getting new assignments. G. A. Green's No. 1 B. B. Dix, Ira Nash Survey, 610 feet north of road and 320 feet to east line, is drilling at 565 feet. J. J. Christie's No. 1 Taylor Thomas, Gustavus Chotwell Survey, 1,100 feet to southwest lines and 1,130 feet to southeast lines, is drilling deeper at 1,063 feet. Miller Brothers' No. 1 Gib Springs, E. Cortari Survey, 450 feet to west line and 775 feet to south line, is at 1,987 feet and has drilled out plugs and will drill through Austin before testing. T. H. Poole's No. 1 C. Woehler, John King Survey, 310 feet to north line and 210 feet to east line, is drilling at 1,400 feet. Shell Petroleum Corp.'s No. 1 Charles Grein, A. Mansola Survey, 530 feet to west line and 150 feet to south line, is drilling at 1,250 feet. Simms Oil Co.'s No. 1 E. Jandt, J. D. Clements Survey, 150 feet to north and west lines, is drilling at 1,166 feet in top of chalk.

Hays County

Estess-Moore & King's No. 1 C. N. Sledge, Hunton & Jones Survey, 285 feet to northwest lines, is standing at 804 feet.

Jackson County

The Texas Company's No. 1 W. C. Moore, I.&G.N. Survey No. 208, located 5,108 feet to south line and 150 feet to west line, is drilling at 3,144 feet. Wright Brothers' No. 2 Classen is drilling at 3,795 feet.

Karnes County

W. E. Hewitt's No. 1 W. E. Porter, 6 miles south of Runge, has been spudded in.

Kerr County

McMan Oil & Gas Co.'s No. 2 Walter Schreiner is location.

Kinney County

Lloyd Oil Co.'s No. 1 G. Bedell Moore estate, Survey 117, is location 1,320 feet to CNL. Mardon Oil Co.'s No. 1 Jim Clamp, Survey 346, Section 1,492, is drilling at 2,508 feet in upper part of the Edwards.

Lavaca County

The Texas Company's No. 1 Russell, H. Martin Survey, 150 feet to south and west lines, is drilling at 2,410 feet.

Maverick County

Ryan Consolidated Petroleum Co.'s No. 2 Indio Ranch, Survey 7, is at 1,320 feet total depth. Rycade Oil Corp.'s No. 3 Chittim, Section 116, Block 7, is drilling at 2,600 feet; No. 3 Sullivan, Section 71, Block 7, is drilling at 5,542 feet.

Medina County

W. M. Allison's No. 1 Haeglin, J. Reed Survey No. 579, located 300 feet to CNL, is drilling at 600 feet. California-Medina's No. 1 Rothe, Survey 1,012, is shut down at 3,278 feet. F. M. Cline's No. 1 T. J. Bendele, Survey 593, located 600 feet to west line and 150 feet to south line, at 815 feet is bailing a little oil. Carl G. Cromwell's No. 1 Taylor, Section 135, Block 28, is shut down at 350 feet. Donaldson Oil Development Co.'s No. 1 Adams Co., Survey 25, located 160 feet to east line and 1,227 feet to south line, at 2,535 feet is in top of the chalk with strong odor of oil. Lynch and others' No. 1 Mott is standing at 503 feet. Richardson's No. 2 Bendele, 75 feet north of No. 1, is standing at 937 feet with showing of oil at 915 feet. Cecil Switzer's No. 2 Zerr, location only, has been held up due to reorganization and old hole may be deepened. E. R. Thomas' No. 1 W. J. Conger, J. J. Keppler Survey No. 459, located 200 feet to north and east lines, at 720-738 feet total depth core shows fine sandy shale carrying oil, showing on ditch.

McMullen County

Natt Holman's No. 1 Shiner, Henry M. Brewer Survey, 885 feet south of Nueces River and 500 feet to west line of survey, has spudded in, location not exact and is being resurveyed.

Nueces County

Nueces River Basin Development Co.'s

No. 1 Allen, G. Farrier Survey, 1,596 feet to south line and 474 feet to west line, is shut down at 2,908 feet.

Refugio County

Blanco Creek Oil Co.'s No. 1 St. John, J. Scott Survey, 708 feet to northwest lines and 3,074 feet to northeast lines, is drilling at 2,250 feet. Dunlap & Wilkinson's No. 1 Rooke, 10 miles south of the gas field, is standing at 2,750 feet. J. M. Davis and Tom Horn's No. 1 Howard, Section 8, located 600 feet to north line and 2,640 feet to east line, is drilling at 2,300 feet. Magnolia Petroleum Co.'s No. 1 Glenewinkle, J. Scott Survey, 330 feet to south and east lines, is drilling at 2,875 feet with gas showing at 2,505 feet instead of 2,815 feet as first reported.

San Patricio County

C. I. Albertson's No. 1 Boscamp, W. R. Hazen Survey, Block 10, located 200 feet to CNL, is standing at 1,420 feet. George B. Pickett's No. 1 Whitworth, NW NW, Section 60, is shut down at 3,250 feet.

Travis County

Flynn Brothers' No. 1 St. Edwards University has spudded in and is drilling with spudding machine.

Uvalde County

Pure Oil Co.'s No. 2 J. D. Smythe, G.C.&S.F.R.R. Survey No. 687, located 1,920 feet south and 265 feet east of No. 1, is drilling at 657 feet.

Victoria County

Houston Oil Co.'s No. 2 Dr. Allen Kyle, east of Nursery, is drilling at 1,160 feet.

MICHIGAN FIELDS

(Continued from Page 52)

Oil & Gas Co.'s No. 1 Collins, and the Victor-Koolker Oil Co.'s No. 1 Cihak, both in NE SE Section 5-10-16.

Swastika Oil & Gas Co.'s No, 1 Barrwell, NW NE Section 14-10-16, reported abandoned at 2,115 feet last week, was drilled to 2,176 feet but may be drilled deeper.

M. R. Marston, who announced he would abandon his No. 1 Frank Zelzenick, NW NW Section 24-10-16, Muskegon Township, at 1,865 feet, drilled it to 2,168 feet, at which point water was encountered and it was plugged and abandoned.

Ten wells were shut down in Muskegon Township, half of them on account of the Dundee price cut and half for other causes.

Twelve other wells were drilling, one was spudding, six rigging or moving in rigs, one fishing, and there were 32 previously announced locations on which there was no activity.

New Locations

Three new locations were announced, of which one is rigging and two are moving in rigs. They are, respectively: Continental Motors Corp.'s No. 11 fee, NE NW Section 22-10-16; L. R. Henley and others' No. 1 J. Koning, NW SW Section 7-10-16, and the Lima Oil Corp.'s No. 4 Haight, NE SW Section 9-10-16.

Nelson & Witt failed to make a commercial producer of No. 1 G. Fenner, NW SE Section 11-10-17, in the upper Traverse, and were drilling at 1,750 feet to the lower Traverse or Dundee. They had a flow of about 1,000,000 feet of gas at 1,677 feet, but went into the water at 1,700 feet. They also had about 50 feet of oil in the hole.

Six other wells in Laketon Township were shut down at the casing point above the Dundee formation. Two of these were drilled for Nelson & Witt and will be completed next week into the Dundee oil sand despite lack of a market.

The other four wells either mudded or cemented at the casing point above the Dundee formation and shut down are: Holland-Weideman Associates' No. 1 Comley, NE NE Section 14-10-17; Double Shot Oil Co.'s No. 1 H. Dykstra, NW SE Section 12-10-17; Johnson Oil Refining Co.'s No. 2 Thompson, SW NE Section 12-10-17; and the same company's No. 6 Thompson, also SW NE Section 12-10-17. The Double Shot's Dykstra well was cased at 2,025 feet and the other three at 2,042 feet.

Nelson & Witt's No. 1 F. J. Gates, NE NE Section 11-10-17, and their No. 1 Ralph Andree, SW SE Section 12-10-17, were cased and cemented at 2,041 and 2,042 feet, respectively, and will be drilled into the pay next week.

V. M. Voorhees' No. 1 Varnes, SW SW Section 15-10-17, Laketon Township, was dry in the upper Traverse at 1,675 feet and drilling at 1,700 feet on the way to the lower Traverse or Dundee sands. It was 40 feet low on the red rock at 893 feet and had little prospects as a Laketon Township wildcat. It is fully 2 miles southwest of production.

Of 12 other wells shut down in Laketon Township, four are about to start drilling again, three are only temporarily shut down for lack of gas and five are shut down for other reasons. Nine others are drilling, three are spudding or driving pipe, six are moving in or rigging, one fishing, and there are 21 locations on which no activity has been started.

Three new locations were announced: Reed Oil Co.'s No. 1 Marion L. Greene and No. 1 Cora L. Sibley, both located NW NW Section 13-10-17, and Joseph A. Meseroff's No. 1 William Christopherson, NE SE Section 12-10-17.

Muskegon County

Two Muskegon County wildcats were drilling into the Dundee formation as the week closed, one with fair prospects for success and the other with indications of failure. White River Oil Corp.'s No. 1 on property owned by the village of Montague and located in SW NW, Section 21-12-17, Montague Township, had drilled 2 feet below the $5\frac{3}{16}$-inch casing at 2,025 feet. Harper and Newman's No. 1 Cook, NE NE, Section 2-9-16, Fruitport Township, did not appear so good at 2,170 feet with no show of oil, gas or water. It was cased at 2,094 feet.

Eureka Oil & Gas Co.'s No. 1 Featherstone, SW SW, Section 35-11-16, Dalton Township, was fishing at 2,018 feet.

The Moon-Fink Development Syndicate's No. 1 Nash, SW NW, Section 20-9-14, Ravenna Township, was cleaning out the hole at 1,880 feet.

Four wells were shut down: Creek Land Development Syndicate's No. 1 Wittels, NE NE, Section 34-11-15, Cedar Creek Township, at 1,275 feet; J. F. Carpenter's No. 1 Jensen, SE NE, Section 2-11-15, also Cedar Creek Township, at 2,032 feet; The Shore Line Corp.'s No. 1 Farrell, NW SW, Section 20-11-16, Dalton Township, at 945 feet; and P. G. Fennell's No. 1 Gustafson, SE SE, Section 19-11-16, Dalton Township.

Two wells were drilling and another rigging. The Cloverville Oil Co.'s No. 1 A. Born, NE NE, Section 12-9-16, Fruitport Township, was drilling at 1,250 feet after striking the red rock at 1,022 feet. L. C. Patterson's No. 1 Monette, SE SE, Section 13-12-15, Holton Township, was drilling at 900 feet. The General Land & Development Co.'s No. 1 Lamos, NE NW, Section 24-12-18, White River Township, has not yet completed rigging up.

Western Michigan Wildcats

Drilling of a 5,000-foot test in Section 12, Brooks Township, Newaygo County, will be started within a short time by Frank Stover, drilling contractor.

OKLAHOMA FIELDS

(Continued from Page 44)

NE, Section 26-7-6, was completed for 70,000,000 feet of gas in Gilcrease sand at 3,146-54 feet.

T. B. Slick's No. 1 Harjo, NW cor. NE, Section 11-5-6, is dry and abandoned at 3,950 feet in Wilcox sand. Anderson & Prichard's No. 8 Culley, SE cor. NE, Section 18-5-8, Allen Pool, made 275 bbls. from Cromwell sand at 2,537-2,663 feet. Burke Greis Oil Co.'s No. 3 Lucy, NE cor. SE, Section 18-5-8, swabbed 600 bbls. from Cromwell sand at 2,505-99 feet. Indian Territory Illuminating Oil Co.'s No. 1 Fleet, SE cor. NW, Section 19-5-8, is dry and abandoned at 2,895 feet.

Sequoyah County

Sequoyah Gas Co.'s No. 2 Powell, C SE NW, Section 33-11-25, made 3,112,000 feet of gas in sand at 3,160-3,240 feet.

Stephens County

Magnolia Petroleum Co.'s No. 7 Thomas, SW cor. SE SE, Section 25-1-9w, is rigging up to deepen from 2,029 feet. Wirt Franklin Petroleum Corp.'s No. 3 School Land, NE cor. Section 36-1s-9w, is drilling deeper at 2,490 feet. Pace and others' No. 1 Woodhouser, SE cor. SW SE, Section 36-1s-8w, is a rig under construction. Ven-Mex Petroleum Co. and Mid-Continent Petroleum Corp.'s rig is up for No. 6 Bush, NW cor. SE NE NW, Section 3-2s-8w. Lone Eagle Oil Co.'s No. 8 Simpson, SW cor. NE NE SE, Section 34-1s-8w, has been completed for 75 bbls. in sand at 1,839-43 feet.

Texas County

Three Way Oil Co.'s No. 1 Price, SE cor. NW, Section 11-1-18ecm, Oklahoma Panhandle, has been abandoned at 3,504 feet.

Wagoner County

Ash Brothers moved a machine in for No. 1 Drew, SE cor. SW SW, Section 15-18-17. D. T. Marr and others' No. 3 Hawkins, NW cor. SW NE, Section 29-18-16, is dry and abandoned at 865 feet.

The production of the more recent pools of the Greater Seminole area by companies and leases for the 24 hours ending Thursday, February 14, at 7 a. m. follows:

Little River Pool

Company. farm—	Location	Wells	Prod.
Amerada:			
Nitey	2- 7-6	3	765
Amerada-Wilcox:			
Fore	35- 8-6	2	565
Barnsdall:			
Cotcha	23- 7-6	2	635
Hotulke	22- 7-6	3	325
Walker	4- 7-6	1	436
Blackwell:			
Baker	11- 7-6	4	1,880
Nitey	35- 8-6	6	1,514
Talley	14- 7-6	4	1,000
Bryan & Emery:			
Walker	4- 7-6	1	13
Carter:			
Cotcha, M.	23- 7-6	3	195
Cudjo, L.	23- 7-6	2	220
Fish	36- 8-6	4	1,000
Harjo, C.	11- 7-6	3	4,005
Harjo, M.	13- 7-6	4	2,967
Jackson	11- 7-6	4	1,825
Larney	24- 7-6	4	3,067
Lena	10- 7-6	1	1,435
Moore	11- 7-6	2	515
Tewee	14- 7-6	6	2,002
Thomas	11- 7-6	1	165
Wilson	12- 7-6	2	....
Champlin:			
Tewee	14- 7-6	2	1,360
Continental:			
Cosar	36- 8-6	7	1,699
Cosar, M.	25- 8-6	1	357
Continental & Fisher:			
Milsey	11- 7-6	2	277
Empire:			
Charty	24- 7-6	1	....
Coker	13- 7-6	2	892
Sandlin	3- 7-6	1	11
Gypsy:			
Brown, C.	33- 8-6	2	350
Brown, M.	33- 8-6	1	910
Campbell	33- 7-6	2	72
Conard	22- 7-6	2	692
Cosar, W.	36- 8-6	2	245
Cotcha	23- 7-6	6	2,555
Denmark	11- 7-6	4	635
Hulhoke	14- 7-6	10	2,043
Mungee	1- 7-6	1	....
Payne	5- 7-7	1	....
Pottie	35- 8-6	4	770
Renton	11- 7-6	3	856
Independent:			
Davis, R.	13- 7-6	3	2,355
Tewee	14- 7-6	6	1,901
Williams	15- 7-6	1	510
Independent & Highway:			
Harris	23- 7-6	8	2,696
Independent & White Eagle:			
Davis	2- 7-6	4	390
I. T. I. O.:			
Campbell	1- 7-6	1	82
Dungan	35- 8-6	3	281
House, M. A.	1- 7-6	1	51
House, W. E.	1- 7-6	1	5
House "B"	2- 7-6	4	984
Hull	26- 8-6	3	318
Jackson	1- 7-6	3	415
McCulla	1- 7-6	3	204
Nitey	2- 7-6	6	140
Phoebe "A"	36- 8-6	2	32
Phoebe "B"	36- 8-6	3	27
Reed	1- 7-6	1	5
Sokethoche	1- 7-6	3	501
Magnolia:			
Cruse	2- 7-6	4	216
Denby	11- 7-6	4	328
Dixon	31- 8-7	1	2
Harjo, A.	14- 7-6	2	60
Harjo, B.	14- 7-6	2	320
Pottie	35- 8-6	4	125
Reed, E.	31- 8-7	1	32
Reed, I.	22- 7-6	3	312
Marland & Shaffer:			
Harrison	4- 7-7	1	586
McCulloch & Sands:			
Harrison	4- 7-6	1	15
Mid-Continent:			
Brunner	11- 7-6	4	245
Elecy	23- 7-6	1	85
Smith	5- 7-7	2	3,240
Wadsworth	36- 8-6	7	240
W. B. Pine:			
Hoyecha	26- 8-6	7	2,166
Pine-Phillips:			
Pottie	35- 8-6	2	550
Prairie:			
Chilcoat	25- 8-6	3	575
Dungan	35- 8-6	1	5
Gibson	14- 7-6	5	1,491
Harris	14- 7-6	4	1,250
House	2- 7-6	4	95
Johnson	24- 7-6	1	665
Lustey	5- 7-7	1	40
Moppin	24- 7-6	2	1,665
Talley	14- 7-6	4	1,485
Prairie & Amerada:			
Sunny	14- 7-6	7	4,580
Pure:			
Brinson	24- 7-6	2	1,368
Cotcha	14- 7-6	10	3,634
Harjo	11- 7-6	4	1,...
Hollins	11- 7-6	1	2...
Reiter-Foster:			
Bunyard	14- 7-6	4	1,...
Shaffer:			
Narcome	36- 8-6	2	2...
Shell:			
Caesar	11- 7-6	1	6...
Glass	26- 7-6	1	6...
Hotulke	23- 7-6	4	1...
Jeffries	32- 8-7	1	6...
Johnson	13- 7-6	3	2,2...
Sinclair:			
Cosar	30- 8-6	3	1,6...
Haney	12- 7-6	2	1,0...
Tewee	14- 7-6	2	1,0...
Sinclair & Kingwood:			
Pompey	24- 7-6	1	6...
Skelly:			
Carl	14- 7-6	2	1,6...
Slick:			
Chilcoat	9- 7-7	1	....
Reed	13- 7-6	2	....
Williams	15- 7-6	2	1,0...
Wood	26- 7-6	2	6...
Slick & Pine:			
Coker	1- 7-6	1	6...
Snowden-McSweeney:			
Tiger	13- 7-6	3	2...
Superior:			
Potulka	31- 8-6	1	....
Soketheche	1- 7-6	1	....
Texas:			
Brooks	25- 8-6	1	....
Coker	1- 7-6	3	2...
Janey	11- 7-6	5	7...
Texas & Independent:			
Hotulke	23- 7-6	4	....
Hotulke	22- 7-6	1	7...
Tidal:			
House	1- 7-6	2	....
Johnson	1- 7-6	1	7...
Twin States:			
Lowe	25- 8-6	1	1...
Wigdon & Long:			
Jefferson	31- 7-6	1	....
Total		326	92,0...

Maud Pool

Amerada:			
Ballard	1- 8-4	1	7...
Gossland	8- 8-5	1	6...
Gravel	1- 8-1	1	6...
Hallum	1- 8-4	2	2,2...
Amerada & Barnsdall:			
Wallace	17- 8-5	1	3...
Amerada & Hull:			
Green	20- 8-5	1	6...
Barnsdall:			
Coker	11- 8-5	3	2,8...
Fife	14- 8-5	1	1,4...
Darby:			
Ketcham	19- 8-5	1	1...
Empire:			
Cluck	11- 8-5	1	....
Gypsy:			
Bourassa	7- 8-5	2	9...
Coker	10- 8-5	1	....
Miller	18- 8-5	4	6,6...
Independent:			
Harding	18- 8-5	3	4,1...
I. T. I. O.:			
Simpson	10- 8-5	1	....
State	16- 8-5	1	....
Tully	10- 8-5	1	....
Laurel Oil & Gas:			
Billington	18- 8-5	1	6...
Magnolia:			
Billington	8- 8-5	1	2...
Phillips:			
Wallace	17- 8-5	1	6...
Phillips et al:			
Hudson	19- 8-5	2	6...
Prairie:			
Billington	11- 8-5	2	1,0...
Campbell	18- 8-5	3	2,4...
Mitchell	15- 8-5	1	1...
Pure:			
Lindly	18- 8-5	4	2,1...
C. Wiley	8- 8-5	4	2,5...
Sinclair:			
Bellars	19- 8-5	7	2,9...
Harjo	11- 8-5	1	1,2...
Skelly & Margay:			
Lingenfelt	18- 8-5	1	1,9...
Slick & White Eagle:			
Villines	20- 8-5	1	....
Sunray & Call-Cul:			
Davis	19- 8-5	1	....
Texas:			
Calvin	7- 8-5	3	9...
Tidal:			
Smith	8- 8-5	1	1...
Everett	18- 8-5	1	6...
Twin States:			
Calvin	7- 8-5	1	2...
Wilcox:			
Smith	8- 8-5	2	9...
Total		64	40,6...

Mission Pool

Amerada:			
Rice	5- 8-6	1	3...
Fuswa	18- 8-6	1	6...
Micou	8- 8-6	2	3...
Gypsy:			
Baby	6- 8-6	1	1...
Barkus	6- 8-6	2	....
Dosar	7- 8-6	1	2...
Hardy	7- 8-6	1	....
Mission	5- 8-6	1	6...
Mosar	1- 8-5	1	....
Marland:			
Maines	7- 8-6	1	1...
Mid-Kansas:			
Moore	7- 8-6	1	1...
Shell & Marland:			
Herndon	7- 8-6	1	....
Shell & Papoose:			
Maines	7- 8-6	1	....
Twin States:			
Hayes	8- 8-6	1	5...
Total		16	7...

Bowlegs Pool

Amerada:			
Roscoe	15- 8-6	7	1,2...
Atlantic:			
Baker	10- 8-6	4	4...
Fleet	23- 8-6	3	1...
Grayson	13- 8-6	4	6...
Jones, A.	16- 8-6	2	8...
Jones, C.	9- 8-6	1	1...
Barnsdall:			
McNac	28- 8-6	1	2...
Murrow	11- 8-6	4	3...
Carter Oil:			
Bowlegs	15- 8-6	4	2...
Burder	23- 8-6	2	2...
Harjoche	14- 8-6	6	2...
Hilly	23- 8-6	3	6...
Jones	11- 8-6	4	8...
Walker	15- 8-6	4	2...
Wise	23- 8-6	11	1,5...
Dixie:			
Culley	11- 8-6	1	9...

Empire:			
Lacy	14- 8-6	6	440
Wise	23- 8-6	2	200
Gypsy:			
Bowlegs	22- 8-6	1	165
Bradley	9- 8-6	1	2
Cumsey	10- 8-6	4	652
Grayson	13- 8-6	4	540
Harjoche	10- 8-6	3	500
Jones	11- 8-6	1	2
Walker	15- 8-6	7	972
Wise	23- 8-6	2	200
I. T. O.:			
Barnett	24- 8-6	2	54
Barnett "B"	23- 8-6	1	59
Billington	22- 8-6	5	129
Bowlegs	22- 8-6	10	1.539
Davis	13- 8-6	4	484
Fay	13- 8-6	9	1.264
Goforth	15- 8-6	12	1.237
Livingstone	15- 8-6	10	1.953
Lizzie	13- 8-6	3	102
Walker	15- 8-6	8	1.066
Williams	12- 8-6	1	151
Wilmott	15- 8-6	4	291
Work	24- 8-6	1	27
Youngblood	24- 8-6	2	107
Magnolia:			
Davis	13- 8-6	3	376
Davis, M.	13- 8-6	1	144
Hammond	10- 8-6	8	738
Rhodes	12- 8-6	5	388
Van Buskirk	9- 8-6	2	716
McCulloch:			
Bowlegs	22- 8-6	2	230
Mid-Continent:			
Baker	10- 8-6	4	332
Bowlegs	22- 8-6	1	5
Smith	12- 8-6	6	600
Minnehoma:			
Bowlegs	15- 8-6	4	144
Prairie:			
Gahagan	23- 8-6	3	370
Harber	10- 8-6	8	1.465
Jones	11- 8-6	4	325
Templeton	12- 8-6	5	1.570
Whitney	23- 8-6	4	520
Pure Oil:			
Reed	14- 8-6	14	2.408
Strother "D" 11 &	14- 8-6	4	474
Strother "F"	10- 8-6	7	2.392
Roxana:			
Taylor	16- 8-6	5	68
Shaffer:			
Lacy	14- 8-6	3	370
Sinclair:			
Cumsey	10- 8-6	4	825
Ellen	11- 8-6	6	785
Harjo	14- 8-6	3	927
Jones	14- 8-6	7	360
Taylor	10- 8-6	4	868
Taylor, W.	10- 8-6	3	533
Walker	22- 8-6	4	1.012
Slick:			
Jones	3- 8-6	1	98
Texas:			
Reed	14- 8-6	11	815
Tidal:			
Grayson	13- 8-6	4	450
Harjoche	10- 8-6	6	1.055
Total		311	40.681

Earlsboro Pool

Amerada:			
Anderson	15- 9-5	2	355
Cowden	4- 9-5	7	1.056
Rogers	3- 9-5	2	102
Atlantic & Gypsy:			
Delaware	13- 9-4	1	....
Atlantic & Sinclair:			
Foreman	18- 9-5	1	130
Baradall:			
Brown	10- 9-5	4	1.383
Bruner, F.	2- 9-5	2	138
Bruner, N.	10- 9-5	3	1.141
Cudjo	14- 9-5	1	23
Davis, D.	11- 9-5	3	525
Davis, J.	11- 9-5	4	714
Davis, M.	11- 9-5	2	39
Gibson	9- 9-5	7	1.280
Hern	15- 9-5	1	1
Ingram	1- 9-5	8	434
Pack, S.	10- 9-5	4	119
Peter	10- 9-5	4	220
Sango	1- 9-5	2	1.340
Sebalka	15- 9-5	1	151
Sullivan, H.	11- 9-5	1	8
Sull-Harjo	10- 9-5	2	33
Wasutke	12- 9-5	3	631
Burke-Greis:			
Wisner	6- 9-6	2	375
Burke & Red Bank:			
Mayo	1- 9-5	1	1.200
Carter:			
Davis	13- 9-5	2	210
Gilliam	13- 9-5	1	590
James	6- 9-6	4	2.545
Continental:			
Kaye	2- 9-5	2	39
Spencer	12- 9-5	4	510
Empire:			
Barker	12- 9-5	1	....
Edmondson	3- 9-5	3	87
Empire & Amerada:			
Bullock	8- 9-5	1	207
Gypsy:			
Bruner	10- 9-5	4	2.515
Carter, B.	11- 9-5	7	1.796
Earl	16- 9-5	1	22
Hunick	5- 9-5	2	2.140
Noble	12- 9-5	4	1.205
Peter	10- 9-5	2	140
Sango	1- 9-5	14	3.410
Slate	16- 9-5	4	482
Independent:			
Bruner	10- 9-5	3	235
Sullivan	10- 9-5	1	....
Knapp	8- 9-5	4	2.056
Independent-Margay:			
Gulna	11- 9-5	3	410
Magnolia:			
Bryant	9- 9-5	6	319
Cowden	4- 9-5	2	20
Dixon	12- 9-5	1	18
Edmondson	3- 9-5	1	4
Germany	30- 9-5	1	19
Gilliam	13- 9-5	1	3.524
Holmsley	11- 9-5	7	17
Hyde	13- 9-5	1	485
Ingram	10- 9-5	1	15
Lena	10- 9-5	3	50
Moore	24- 9-5	1	42
Seay	12- 9-5	9	1.048
Simpson	10- 9-5	4	276
Sparks	11- 9-5	6	226
Sullivan	12- 9-5	3	70
Mid-Continent:			
McCumber	9- 9-5	7	75
Rogers	5- 9-5	2	1.560
Mid-Kansas:			
Anderson	14- 9-5	2	50
Phillips:			
Dunaway	14- 9-5	1	15
Prairie:			
Baker	24- 9-5	1	65
Davis	13- 9-5	3	960
Graham, C.	3- 9-5	2	....
Graham, O.	10- 9-5	4	1.110
Stidham	11- 9-5	10	1.295
Prairie & Whitney:			
Harjo	24- 9-5	1	....
Roxana:			
Bayless	17- 9-5	1	170
Hearn	13- 9-5	1	....
Spencer	12- 9-5	2	10
Shaffer:			
Clark	1- 9-5	3	130
McCoy	36-10-5	1	1.312
Sinclair:			
Foreman	18- 9-5	1	15
Hollins	12- 9-5	1	40
Sango	2- 9-5	4	1.900
Skelly:			
Mays	1- 9-5	3	2.254
Shepard	6- 9-6	3	1.828
Spencer	12- 9-5	1	70
Skelly & Atlantic:			
Cherry	6- 9-6	4	1.203
Lottie	6- 9-6	2	1.445
Slick:			
James	6- 9-6	2	1.840
Slick et al:			
Campbell	6- 9-6	4	3.579
Superior:			
Ingram	1- 9-5	1	840
Walker	2- 9-5	3	1.823
Texas:			
Anderson	2- 9-5	8	55
Brown	10- 9-5	8	167
James	6- 9-6	2	295
Rogers	5- 9-5	5	1.680
Wilmott	10- 9-5	7	42
Tidal:			
Walker	35-10-5	3	1.820
Watkins	9- 9-5	7	1.920
Twin States:			
Barker	12- 9-5	3	45
Hern	2- 9-5	4	33
Total		298	65.576

MATTHEW GRISWOLD, OF ERIE, TAKEN BY DEATH

Matthew Griswold, who retired as manager of the Erie, Pa., works of the General Electric Co. on January 1 because of ill health, died in his home in Erie on February 10.

Mr. Griswold was born in Erie in 1866, and was graduated from Sheffield Scientific School, Yale, in 1888. After two years of postgraduate work he obtained the degree of M. E. Upon leaving college, he became associated with the Griswold Manufacturing Co. of which he served as president for years.

In 1911 Mr. Griswold severed his connection with the Griswold company to become acting manager of the Erie works of the General Electric Co. He was made manager of the plant a year later.

DEATH OF JAMES W. SWAYNE

James W. Swayne, 73 years old, a resident of Fort Worth, Tex., died in Austin, Tex., Monday, February 11. Mr. Swayne at the time of his death was chairman of the State Industrial Accident Board of Texas. Deceased was a native of Tennessee and went to Texas in 1876. He was a junior partner in the Hogg-Swayne Syndicate which operated in the Gulf Coast Field in the early days of the development there. The syndicate was absorbed by The Texas Company and both Hogg and Swayne went into Texas politics. Mr. Hogg became governor of the State. Mr. Swayne became a state senator, later a county attorney and then judge of the Seventeenth Judicial District. He was appointed by Governor Miriam A. Ferguson to the post he held at the time of his death, having been reappointed by Governor Moody.

DEATH OF FRED W. WAGNER

Fred W. Wagner, oil producer of Bradford, Pa., was killed in an automobile accident on Saturday, February 9. Mr. Wagner was born on the Wagner farm north of Bradford about the time oil was discovered in the Bradford district not far from his birthplace. The Wagner farm was one of the earliest properties to show oil production. His father M. W. Wagner, was an oil producer and the son was actively and successfully engaged in the production of oil when he met his untimely death. Mr. Wagner married Miss Effie Eaton, daughter of H. W. Eaton and niece of John Eaton, for many years president of the Oil Well Supply Co. Mrs. Wagner survives.

J. G. BOYD DIES

CHATHAM, Ontario, Feb. 16.—James Gardiner Boyd, formerly of Petrolia, died recently at Toronto, aged 67. He learned the drilling trade in the Petrolia fields, and later spent some time in foreign fields, particularly Borneo.

OIL ACTIVITY IN PERU SHOWS LITTLE GROWTH

By A. M. McQueen*
Vice president, Imperial Oil, Ltd., Toronto, Canada.

Activity in the oil industry in Peru was somewhat above normal in 1928. Probably the most significant feature was the interest displayed in the oriental region in the northeast part of the country. This region, though little known, has long been considered potentially rich in oil, gold, coal and other minerals, lacking only transportation to make it the country's most valuable source of income.

The Standard Oil Co. of New Jersey, through its recently formed subsidiary, the Standard Oil Co. of Peru, has acquired various tracts along the Maranon and Ucayali Rivers in the neighborhood of the Brazilian border. Standard Oil Co. interests have had geological and surveying parties in this part of Peru since 1921, and as a result of the work done, we understand they have under lease at the present time some 2,500,000 acres of prospective oil lands.

Development in the coastal region continued along normal lines during the past year. Production figures for both the International Petroleum Co. and Lobitos Oilfields show a small increase over the last few years. Total production figures since 1924 for the International Petroleum, Lobitos Oilfields and Zorritos companies, only in a minor degree estimated, are as follows: 1924, 7,924,700 bbls.; 1925, 9,138,042 bbls.; 1926, 10,750,676 bbls.; 1927, 10,110,696 bbls.; and 1928, 11,969,677 bbls.

In 1927 the average daily production for the International Petroleum Co. was 21,282 bbls. per day, and for 1928, 25,954 bbls., an increase of 4,672 bbls. per day. During the last two or three years production methods of this company's property have improved considerably in line with the advance in scientific technique throughout the United States. The company has invested extensively in compressor equipment for handling its surplus gas, with the result that gas lift and repressuring operations are in no small way responsible for the increase in the production figures for 1928. In addition, the company's three casinghead gasoline plants produced 23,271,184 gallons net. During the past year the company increased its runs at the Talara refinery from 13,000 to 15,000 bbls. per day, and is now erecting a new plant for the manufacture of lubricating oils.

During the year 172 wells were completed. Of these 147 wre productive with an average initial production of 218 bbls. per day. Footage drilled during the year was 326,238 feet, as compared with 274,448 feet for 1927. Comparative figures for the past five years follow:

	1924	1925	1926	1927	1928
Feet*	201,765	152,592	270,231	274,448	326,238
Wells†	103	84	147	138	172
Wells‡	80	73	124	124	147
Bbls.§	204	344	222	189	218

*Total footage drilled.
†Total wells completed.
‡Producing wells completed.
§Average initial production, barrels.

At December 31, 1928, 2,427 wells had been completed on the property, of which 1,545 were producing oil and gas at that time.

Considerable wildcatting was done by the company during the year on its concessions at Sechura, 40 miles south of Paita, and to the north in the Tumbez region. A conspicuous lack of success has attended this development work outside the La Brea-Parinas estate, and the year 1929 should definitely determine whether such work will continue.

The average daily production of Lobitos Oilfields increased from 6,185 bbls. per day in 1927, to 6,523 bbls. per day in 1928. The drilling statistics and potential production figures for this company are not available, but the writer is creditably informed that they have considerable production shut in.

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THREE BIG COMPANIES IN DUTCH EAST INDIES

By J. Th. Erb*
Director, Royal Dutch Petroleum Co., The Hague, Netherlands

Oil is found in commercial quantities in the islands of Sumatra, Java, Borneo, Tarakan and Ceram. The oil deposits of the Dutch East Indies and Sarawak are with one exception of Tertiary origin and as a rule are bound to anticlinal structures. The number of layers varies in most fields and in some of them 14 oil producing levels have been established.

The crude oil varies in composition. Some of it, particularly from North and South Sumatra, has a gasoline content up to 50 per cent. Borneo produces mainly wax oil, while the Tarakan oil can be used directly as liquid fuel. In Java both wax and wax-free oil is produced.

In all important fields installations have been erected to treat the wet gas. The lean gas is used for gas-lift purposes, Marietta process, and as fuel for boilers and motors, either in the fields or in the refineries.

Formerly only percussion systems (Canadian, Californian and a drilling system devised especially for the purpose of the Royal Dutch Petroleum Concern) were applied in the Dutch East Indies, but in recent years the rotary system has been predominant and good results have been obtained with it. The deepest producer has recently been struck in South Sumatra at a depth of 1,624 meters (5,328 feet), with a daily production of about 350 cubic meters crude oil.

The crude is brought by an extensive system of trunk lines to the refineries, of which there are one in North Sumatra (Pangkalan Brandan), two in South Sumatra near the town of Palembang, two in East Java (Tjepoe and Wonokromo), one in East Borneo (Balik Papan) and one in Sarawak (Miri).

The principal producing concerns in the East Indies are: De Bataafsche Petroleum Maatschappij, the producing subsidiary of the Royal Dutch Petroleum Concern; Sarawak Oilfields, Ltd., one of the producing subsidiaries of the Anglo-Saxon Petroleum Co., Ltd., and Nederlandsche Koloniale Petroleum Maatschappij (Standard Oil Co. of New Jersey). The combined production of these companies in 1928 (a metric ton equaling on an average 7.36 bbls.) was:

	Metric tons
North Sumatra	157,501
South Sumatra	880,571
Java	469,773
Borneo (including Sarawak and Tarakan)	3,439,848
Total	4,947,693

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OLD-TIME DRILLER DIES

FORT WORTH, Tex., Feb. 16.—W. G. Lewis, 79, old-time drilling contractor and producer from Oil Creek, died here today and will be buried Wednesday.

DEATH OF SAMUEL SHOUP

Samuel Shoup, aged 80 years, is dead at his home in Petersburg, Clarion County, Pennsylvania, following an illness of a month. He was engaged in the oil business for many years. He worked as a teamster in the early days of the oil excitement on Oil Creek.

W. S. PILLOW DIES

HOUSTON, Tex., Feb. 16.—William S. Pillow, vice president and treasurer of the Humble Pipe Line Co., died Saturday morning at his home in Houston following a brief illness. Mr. Pillow, who was 48 years old, had been with the Humble companies since 1919.

DEVELOPMENT IN ECUADOR

The Ecuadorean minister of the treasury has announced that an English interest will develop the petroleum fields in Selena. Experts claim that the petroleum at Selena is of a better grade than most Peruvian oil.

Natural Gasoline Manufacture

Gasoline Output in United States Nears Two Billions Yearly

The natural gasoline production in 1928 totaled 1,776,000,000 gallons, according to the preliminary figures of the Bureau of Mines which were released at Washington, D. C., during the past week. This is an increase of 152,400,000 gallons over the 1927 production and establishes a new yearly record.

The 1928 increases, however, was not as large as in 1927 and 1926. The 1927 increase totaled 266,800,000 gallons (19.6 per cent) and the 1926 increase was 229,330,000 gallons (20 per cent). The gasoline manufacturers were able to maintain heavy shipments throughout the year, the demand exceeding the supply. The shipments for 1928 totaled 1,781,300,000 gallons resulting in a withdrawal from storage of approximately 5,000,000 gallons.

The three main producing states—California, Oklahoma and Texas—all had large increases in output during 1928. Oklahoma, which is the largest producer of natural gasoline, increased its production 71,800,000 gallons; California, 55,500,000 gallons and Texas 14,400,000 gallons.

The following table gives the production by areas for 1928 and 1927, based on reports of the Bureau of Mines:

NATURAL GASOLINE OUTPUT
(Data given in millions of gallons.)

Production natural-gasoline by fields:	1928	1927
Appalachian	99.7	94.4
Kentucky, Illinois, etc.	14.2	16.0
Oklahoma	616.3	544.5
Seminole*	247.5	.....
Osage County	98.7	.....
Rest of State	270.1	.....
Kansas	35.7	34.0
Texas	331.0	316.6
Panhandle	112.6	.....
North Texas	44.9	.....
West Central	156.7	.....
Rest of State	16.9	.....
Louisiana	55.5	45.0
Arkansas	32.5	37.5
Rocky Mountain	45.9	45.9
California	545.2	489.7
Long Beach	177.1	.....
Ventura Avenue	65.4	.....
Seal Beach	30.9	.....
Huntington Beach	50.1	.....
Santa Fe Springs	39.6	.....
Rest of State	182.1	.....
Total United States	1,776.0	1,623.6
Daily average	4.9	4.4
Indicated deliveries	1,781.3	1,611.9
Stocks at end of period	25.5	30.8
Blending at plants:		
Raw gasoline used†	26.7	34.6
Naphtha used†	34.3	53.4
Stocks of blends at end of period	1.1	1.4
Indicated output of motor fuel:		
Gasoline produced at refineries	15,841.7	13,888.0
Nat. gasoline blended at plants†	26.7	34.6
Nat. gasoline sold to jobbers (est.)	25.2	9.6
Benzol produced‡	118.0	107.6
Total United States	16,011.6	14,039.8
Daily average	43.7	38.5

*Does not include St. Louis, Pearson and Maud districts.
†Exclusive of California.
‡Estimated with production of by-product coke as basis.

PLANT OPERATORS MEETING

All plans for the plant operators meeting of the Natural Gasoline Association of America to be held at Ranger, Tex., February 26 have been completed. The program, which was published in the February 14 issue of The Oil and Gas Journal (page 130), provides for the discussion of several practical operating problems. The meeting will be held at the American Legion Hall, at Ranger.

Ray E. Miller, recently elected secretary of the association, will attend the meeting. Dr. E. R. Lederer, vice president of the Texas Pacific Coal & Oil Co. and chairman of the executive committee, will be in charge.

START OPERATING SEVERAL GASOLINE PLANTS IN GREATER SEMINOLE AREA

Despite the fact that production materially increased in new pools due to the starting up of plants the natural gasoline production of the Greater Seminole area including the St. Louis and Pearson areas on February 18, was less than on the same date in January. The daily production as shown in the accompanying table the first of this week totaled 1,044,500 gallons. This compares with a production of 1,099,000 gallons the middle of January and 1,079,000 gallons the middle of December.

The gasoline output of most of the older pools in the Greater Seminole has declined slightly during the past month. Part of this decline is due to the cold weather and part due to the fact that at least two companies have changed their production from Grade C to AA resulting in smaller yields.

It also is apparent that a few plants are losing a part of their gas supply. This is particularly true of the Earlsboro and Bowlegs Pools. For instance the production of the Sinclair plant in Bowlegs has dropped approximately 50 per cent due largely to the fact that gas is not available. In the Earlsboro and old Seminole City Pools in several instances manufacturers explained that their output had declined due to a decrease in gas volume. Wells are constantly being changed from the gas lift to the pump and this means less gas available at the gasoline plants. The gas from the pumping wells is richer but this increase in gasoline content is not sufficient to offset the decline in volume of gas.

Production Declines

The production in the old Seminole Pool, including Searight, dropped from 287,000 gallons daily to 271,000 gallons; Bowlegs from 214,000 gallons to 150,000 gallons; Earsboro from 155,000 gallons to 125,000 gallons, and Little River including south Little River from 268,000 to 252,000 gallons. Those in touch with the Greater Seminole development agree that the gradual decline in the older pools will continue indefinitely which means that the flush production from new pools will be necessary if the 1,000,000-gallon daily figure is to be continued.

New Plants

The increases of the past month came from the St. Louis-Pearson, Maud and Mission areas. The first plant in the latter pool started operating this week. The plant belongs to the Gypsy Oil Co., the largest crude oil producer in the field. This plant which has a capacity of 65,000 gallons daily is located in the SW NE 7-8-6. It was built so that it was ready to operate on February 15 the date established for the opening up of the pool. Under a co-operative agreement the drilling in of the wells was held up until that date.

A new agreement was reached during the past week which will curtail the production of the wells in line with a general plan which seeks to hold total crude oil production in Oklahoma to 650,000 bbls. daily. The details of this plan are explained elsewhere in this issue. From the natural gasoline end it will tend to hold back gasoline production. However, a large number of wells will be completed in the Mission Field during the next few weeks. While the wells are being gauged to determine their maximum production they will be allowed to flow without restrictions. Due to this fact large volumes of wet gas will be available. The Gypsy company estimated the production of its plant starting this week at 50,000 gallons daily.

The Independent Oil & Gas Co. also has a 10,000-gallon gas lift plant in the field which will start operating this week. In addition, there are booster installations which will boost the gas to plants in adjoining fields. The probable gas volume in the Mission Pool at present does not appear to be large when compared to some of the other fields. However, including the production from the Gypsy plant it is expected that the pool will add around 100,000 gallons daily to

(Continued on Page 137)

PRESENT PRODUCTION NATURAL GASOLINE IN SEMINOLE DISTRICT BY POOLS
(Production shown as net daily average in gallons)

Company—	Total prod.	Seminole	Bowlegs	Earlsboro	Little River and S.L.R.	St. Louis-Pearson	Maud	Mission
Amerada Pet. Corp	41,000	4,000	8,000	14,000	.....	.....	15,000	.....
Barnsdall Oil Co.	38,000	.....	.....	26,000	.....	.....	12,000	.....
Carter Oil Co.	180,000	125,000†	.....	.....	55,000	.....	.....	.....
Crosbie & Moran	25,000	.....	.....	25,000	.....	.....	.....	.....
Cushing Ref. & Gas. Co.	40,000	.....	.....	.....	16,000	24,000	.....	.....
Empire O. & R. Co.*	95,000	25,000	45,000	.....	16,000	.....	9,000	.....
Forrest E. Gilmore Co.	40,000	.....	6,000	.....	34,000	.....	.....	.....
Gypsy Oil Co.	121,000	.....	.....	.....	71,000	.....	.....	50,000
Independent O. & G. Co.	30,500	7,500	.....	.....	23,000	.....	.....	.....
Magnolia Pet. Co.	20,000	.....	.....	8,000	.....	12,000	.....	.....
Moran & Gillespie	23,000	.....	.....	.....	.....	23,000	.....	.....
Pure Oil Co.	46,000	14,000	16,000	.....	16,000	.....	.....	.....
Shell Pet. Corp.	52,000	.....	12,000	.....	.....	40,000	.....	.....
Sinclair Oil & Gas Co.	198,000	90,000	45,000	10,000	8,000	45,000	.....	.....
Skelly Oil Co.	37,500	.....	.....	30,000	7,500	.....	.....	.....
Victor Gasoline Co.	57,500	5,500	18,000	12,000	6,000	.....	16,000	.....
Total	1,044,500	271,000	150,000	125,000	252,500	144,000	52,000	50,000

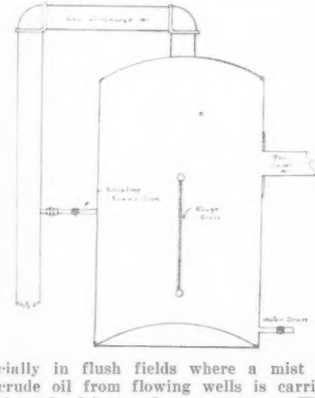
*Includes the production of the Indian Territory Illuminating Oil Co.
†Includes 55,000 gallons daily in Searight Pool.

A PRACTICAL SUGGESTION

LOW-STAGE GASOLINE

Unless the gasoline content of the gasoline processed is exceedingly low, gasoline, in varying amounts is "knocked out" in the accumulator or scrubber tank on the discharge of the compressors from a low pressure absorption plant.

This gasoline is often colored, especially in flush fields where a mist of crude oil from flowing wells is carried through drips and compressors. This necessitates running gasoline through the distillation unit or a separate drip still. The purpose of the accumulator or scrubber tank is especially to remove water and prevent its entrance into the absorbers.



In many plants a connection is provided for blowing the gasoline periodically into the still but this may cause overloading of the stripped oil and thereby affect the extraction efficiency, or it might cause the still to "puke." The plant operators are apt to run the gasoline too rapidly with this arrangement which is usually manual operation. Another method of handling gasoline is to blow it into a stock tank after a sufficient quantity has accumulated to distill in a batch still.

The arrangement suggested here has the advantage, in that the gasoline is handled as it condenses, does not throw any part of plant out of balance temporarily and is also automatic and foolproof. It consists simply of a small pipe connecting scrubber to gas discharge pipe or directly into the absorber if its base is on the same or lower elevation than scrubber. The water is drawn off periodically and the gasoline as it is made will flow by gravity from scrubber into gas line and be carried to the absorption oil in absorber.

Practical suggestions by those connected with the construction and operation of natural gasoline plants are invited. Payment will be made as soon as suggestions are accepted. Address all communications to the Natural Gasoline Department, The Oil and Gas Journal, Tulsa.

NEW GILMORE PLANT

The Forrest E. Gilmore Co. has started operating its new plant in the Pampa Field of the Texas Panhandle. The plant which is located 4 miles north of Kings Mills has a capacity of 10,000 gallons daily. Its initial output is 5,000 gallons daily.

CROSBIE-MORAN PLANT

The new plant of Crosbie & Moran, Tulsa, located near Lovell, Logan County, Oklahoma (Section 20-19-4w), is now operating. The plant is the oil absorption type. Its initial output of 3,000 gallons daily will be increased.

NEW CHARCOAL PLANT

The Skelly Oil Co. has completed the installation of its No. 3 gasoline plant of the charcoal type on the Shaffer ranch in Gray County of the Texas Panhandle. The plant will have an output of 5,000 gallons daily. The company is also completing a large booster plant in that field. With the completion of equipment now being installed the company will have a gasoline plant capacity of 30,000 gallons daily on the Shaffer ranch.

FIRE AT SHELL PLANT

Fire last week damaged the plant of the Shell Petroleum Corp. located near Marshall in Logan County, Oklahoma. The damage was largely confined to stock tanks and the plant stabilizing equipment. A spark from a broken tee in a stock tank manifold is believed to have been responsible for the fire.

The plant has resumed operations and will be operating at capacity within a few days.

35 CENTS a line first insertion; 25c a line each additional insertion. Cash in advance.

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MAIL your advertisement now. It will be published next week. Cash with order.

LEASES—PRODUCTION

WILL LEASE—160 acres close to Pecos Valleys Oil Co. well, North Pecos County, Texas. Owner, 1232 W. 45th St., Oklahoma City, Okla.

CALIFORNIA OIL POSSIBILITIES
SOUTH OF TULARE, CALIFORNIA
100 Acres highly diversified ranch surrounded with lands now leased to several Oil Companies. Priced at this time only slightly higher than its agricultural value.
FRED B. FOX
206 Cory Building, Fresno, California.

ATTENTION
LEASE BUYERS AND INVESTORS
We represent hundreds of California owners of New Mexico State Oil Leases in the trend of development and offer some wonderful buys in Lea, Eddy and Chaves Counties. Barnhart-Powers, 1404 Franklin St., Oakland, Calif.

MUSKEGON OIL FIELDS
Choice leases; also large tracts open for drilling propositions. For reasonable prices and a square deal, write E. Bacon, 17006 Turner, Detroit, Mich.

CADDO COUNTY
OIL LEASES AND ROYALTIES
C. W. Ludwick
Fort Cobb, Okla.

BROKERS AND INVESTORS: If you want a real buy in an oil lease or perpetual oil royalty located in the big oil play of Lea and Roosevelt Counties, New Mexico, write Monarch Investment Company, Roswell, New Mexico.

Jimm Hogg, Zapata County contract, 40 acres close to Oldsworth field. Will sacrifice for quick sale. Edwin Malm, P. O. Box 523, San Antonio, Texas.

FOR SALE—Oil and Gas Leases in Breckenridge County, Ky. Price right. J. C. Preston, Owensboro, Ky.

J. W. DENDY, DEALER
In leases, royalties, real estate. The best bets at less money in East Texas' new development.
Quitman, Texas.

Rich oil and gas land for lease and drilling, located Tr. 1. N. W. ¼ Sec. 30. T. 22. R. 12. E. 160 acres, Osage County, Oklahoma. George Wagner, lease owner, 3715 Melbourne Ave., West, Cleveland, Ohio.

3,800 acre solid block, best location in Colorado County, Texas, according to Texas University bulletin, also favorable structural and geophysical indications. Free for 3,800 foot test by approved operator. Chance at four producing sands. Hiland P. Lockwood, Rice Hotel, Houston, Texas.

Inexhaustable Gas Wells at 300 Feet
1,500 ACRE BLOCK in Southeast Kansas right against a new Industrial Gas line that is raring for gas, 5 gas stratas 180 to 850 feet, gas production on all sides. Year around market eight cents at wells. No line pressure to buck. Long life sand gas wells and practically no decline to shale or Oswego wells. Almost impossible to drill a dry hole. This is the finest little gas proposition you'll ever see and the block is for sale. Address P. O. Box 533, Bartlesville, Okla.

LEASE BUYERS
Don't buy at random. Play close in to development. Quick action. We offer no leases except around a well we are drilling ourselves, spending our own money. When you buy from us you are side by side with the major companies spending not a dime more for your lease than they. Send for ownership plat, structural map and geological report if interested in the purchase of leases in sound sensible play. Crown Oil Company, 703 Dallas National Bank Bldg., Dallas, Tex.

SELL for $10,000.00. One half of my royalty on 2,499 acres, Foard County, Texas. 20 year contract. Good structure. Turkey Track Ranch, Colorado Springs, Colo.

WILL SELL oil property near Coalinga. Flowing well near. P. O. Box 343, Fresno, Calif.

FOR SALE—FORTY ACRE OIL LEASE IN BLANCO COUNTY, TEXAS. W. E. MAC MILLAN, 1843 W. 43rd Pl., LOS ANGELES, CALIF.

LEASES—PRODUCTION

FOR SALE—Lea County, New Mexico, 40-acre lease, SW¼ NW¼, Sec. 34, Twp. 18s, R. 37e; $200 per acre cash and ⅛ royalty. Also 40-acre lease, SE¼ Sec. 25, Twp. 17s, R. 36e; $100 per acre cash and ⅛ royalty. R. B. Coyle, 2215 Beechwood Blvd., Pittsburgh, Penna.

FOR SALE—Leases, Oil Production, Asphalt, Limestone and Other Mineral Lands. W. P. Harley, Bowling Green, Ky.

ATTENTION BROKERS EVERYWHERE
Investors' Opporunity
FOR SALE
WINKLER COUNTY PERPETUAL ROYALTY
FULLY PARTICIPATING
We sell and deliver as low as one Royalty and Mineral acre up to Two Hundred and Forty acres under all Sections, also 3-4-5-6-7-15-16-17-24-25-38, Block B5, Section 5, Block B-11. Also under Sections 23-25-38, Block 26.
Prices and terms upon application.

Also offer for sale
1,015 Royalty Acres.
Located under all Section 1-12, Block 28, also Sections 5-6-7-17-18-19-20-21-22-23-24-26-29-30-31-32, Block 27.

IF YOU
DESIRE THE OPPORTUNITY TO SPECULATE
I OFFER 1,280 WILDCAT LOTS
Carries one-fourth Land Owners' Royalty
All surveyed and platted, located in the NW ¼ Section 5, Block B-5.
Half mile west Boline well in Section 4.
Half mile south Kermit—County Seat—and Flander well.
Will deliver Warranty deed to each lot.
Abstractors Certificate Title.
Sell a single lot, size 50 x 140 feet, if desired.
THE PRICE
$39.50 each
Easy terms to purchasers.
For further information I refer you to any up-to-date
WINKLER COUNTY MAP
If you are interested in buying
Address
H. E. LEMAR
Box 762
San Angelo, Texas.

REAL ESTATE MEN AND AGENTS
WANTED—Agents, salesmen and real estate men to handle lots and acreage in the townsite of Chula Vista, Hot Springs County, Arkansas, on the U. S. Highway No. 70 near Hot Springs, which is a nationally known resort in the great mineral, oil and gas district of Arkansas. Millions being spent by Arkansas Light & Power Co. for a dam which will make a lake over 20 miles long. Chance for Silver, Lead, Zinc, Oil, Gas and other minerals. Oil test to be made on townsite. Lots $25 to $100 each. Write for maps and information.
Chula Vista Townsite Co.,
625 Central Ave.,
Hot Springs, Arkansas

WINKLER—PECOS COUNTIES
Leases and Royalties.
W. S. PATTERSON
Pecos, Texas.

I AM in the market to buy Oil and Gas Leases and Acreage on good structures. W. W. Ogden, 1203 2nd Ave., Charleston, W. Va.

$3 to $5 per acre for West Texas land with Oil and Mineral right 40 acres up. New Mexico oil leases. Winter garden lots and truck farms on easy terms; agents wanted. A. Poe, 829 Wilson Bldg., Dallas, Texas.

LEA COUNTY, NEW MEXICO
Perpetual Royalties.
W. S. Patterson
Pecos, Texas.

LEASES—PRODUCTION

WILL GIVE 4,000 acres Concho County, Texas, for a small bonus and a well. Frank Smith, 4208 Wycliffe Ave., Dallas, Texas. Phone 5-3724.

WEST TEXAS oil lease and equipment. Making about $50,000.00 a year. Only $125,000. Box 1509 Pittsburgh, Pa.

For oil land in fee or leases in producing fields Northwestern Colorado. W. H. Graham, Steamboat Springs, Colo.

HAVE 25 ACRE lease offsetting gas well shallow drilling. Give half interest for well. Box 412, Muskogee, Okla.

OLD DUNBAR STRUCTURE: Decatur County, West Tennessee, located and mapped by H. D. Easton, one of the best Geologists in Southwest who says it is VERY PROMISING and advised drilling. Several major operators had best geologist to work this same structure and all highly endorse it as good. Standard of La., drilling on this structure: Our own well over 600 feet showing promising. If you want in on EXTRA GOOD PROSPECTIVE field we advise get this one. Choice acreage paid up five years at right prices. Write, wire or better come and see us quick. CHESTER COUNTY OIL CO., Inc., Henderson, Tenn.

I HAVE VERY PROSPECTIVE WELL blocked Oil & Gas leases in western Michigan and will sell a few interests, based on cost of drilling test wells. Unusual opportunity, no stock for sale. Best of references furnished. Box 256, Mansfield, Ohio.

120 ACRE LEASE on Wilcox structure, Bald Hill District. Want drilled. Box 412, Muskogee, Okla.

FOR SALE—I own 1/64 interest royalty rights on 640 acres in Edwards County, Texas. Survey 64, Block 1, Certificate 1/115. G. W. T. and P. Ry. Co. Will sell all or part acreage for $1.00 per acre. Your opportunity. O. Sundine, 1926 Belle Ave., Davenport, Iowa.

WINKLER, PECOS, WARD, Loving and Reeves Counties. Leases and Royalties. Hemby & Anderson, Box 633, Pecos, Texas.

LEASES AND ROYALTIES
Close in to production, Sedgwick and Harvey Counties, wire or write. Southwest Investment Co., 205 Orpheum Bldg., Wichita, Kans.

TEXAS
Leases and Royalties,
Drilling Blocks,
Central and Southwest Texas,
Gulf Coast.
In the play now—Bastrop, Caldwell, Guadalupe, Gonzales, Wilson Counties.
J. S. JONES,
Tel. Bldg. Phone 351.
LULING, TEXAS

ROYALTIES—PRODUCTION

PERPETUAL DEEDED ROYALTIES
Winkler, Loving, Ward, Lea, Pecos Counties. J. R. Haynes, Grantville, Kans.

ROYALTIES, Winkler County, Texas. 40-acre tracts or section spreads. Harry Haynes, Grantville, Kans.

FOR SALE several small tracts producing "Royalty" priced from $750.00 to $6,000.00. Address W. M. Gallagher, Gen. Del., Tulsa, Okla.

WESTERN OKLAHOMA royalty ahead of the drill. Inquiries invited. Joe P. Crawford, Petroleum Bldg., Oklahoma City, Okla.

TEXAS ROYALTY oil lands. Send for circular. Alfred Day, New Tyler Hotel, Ft. Worth, Texas.

ACTIVE WEST TEXAS ROYALTIES. $8 per square mile big company operation. Also close-in and producing. State preference. Maps and bulletins show many fine buys. R. R. Fisk, Box 1214-B, Wichita Falls, Tex.

MONTANA ROYALTIES, proven, producing and wildcat. Quick action, low prices. Easy payment terms. A. H. Raymond, Box 1776, Great Falls, Mont.

Winkler and Pecos Counties, leased and royalty. New Mexico royalty. W. H. McLeod, Box 653, Kansas City, Mo.

ROYALTIES—PRODUCTION

IN THE HEART OF TRANS-PECOS
Royalties only under lease to the major companies. Close in leases to wells being drilled by reputable contractors. Let me know what you want. If it's here, I will get it for you. 25 years experience in the Mid-Continent oil fields. I bought and sold some of the first leases on the famous Yates Ranch. E. J. Davied. Fort Stockton, Texas.

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We deal in Oklahoma Royalties exclusively.

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415,000 acres, New Mexico. Also four Texas ranches. Chance for oil. Box 653, Kansas City, Mo.

CHEAP WEST TEXAS LAND IN FEE
Being snapped up by large interests because of OIL POSSIBILITIES, as well as RANCH VALUES. Only few tracts left BREWSTER, CULBERSON Counties $1.50 bonus. Write today. J. L. FERGUSON, San Angelo, Texas.

FOR SALE—HUNTING PRESERVE
8,800 acres situated in Southeastern part of South Carolina about 40 miles from the Atlantic Ocean and bordering on two navigable rivers. All kinds of Wild Game, such as Deer, Quail, Turkey, Ducks, Fox, Rabbits and Opossum. Good fishing, boating and bathing. About seven million feet of timber on land. About 2,000 acres in cultivation, which is suitable for growing all kinds of truck, fruit and pecans. W. P. Harley, Box 453, Bowling Green, Ky.

WANTED

WANTED: Driller to drill for oil on land in South Texas on royalty basis. Address V. C. Whipple, Elwood, Ind.

WANTED—Oil operator to develop proven field on shares. Dome formation, oil shallow, near railroad, Alberta, Canada. Box C-762, The Oil and Gas Journal, Tulsa, Okla.

RESPONSIBLE DRILLING CONTRACTOR wishes straight contracts in Michigan Field. Am completely equipped with the best of tools and will make an interesting price to reliable companies. Have the experience, ability and finances to complete your wells in record time. Address Box C-772, The Oil and Gas Journal, Tulsa, Okla.

WANTED, Men who has had experience in setting PUMPING JACKS, and knows how to hook up powers, etc. TO SELL AND SERVICE PUMPING JACKS. Must have some sales ability and acquaintance among production superintendents, and furnish his own car to work local territory. Will pay $150.00 a month and pay for oil and gasoline bills; and a commission on sales over a certain amount. Want one man each in Arkansas, Louisiana, Wyoming, Montana, and Southern Okla. 2 in Texas. Give references as to character, ability etc., in first letter. Address P. O. Box 88, Tulsa, Okla.

WANTED HIGH CLASS executive familiar with Mid-Continent oil field equipment. Must be mechanical engineer. Box C-755, The Oil and Gas Journal, Tulsa, Okla.

MONEY RAISING

CAPITAL SEEKERS
Will endeavor placing proposition of merit on underwriting basis. Box 44, Room 407, 26 Court Street, Brooklyn, N. Y.

FINANCE YOUR OWN project with shares bonded. Quickest, most satisfactory known method of raising capital. Information free. Bankers Interstate Security, Electric Bldg., Denver, Colo.

DO YOU NEED MONEY for organizing or financing oil or mining deals? Write 136 E. 13th, Oklahoma City, Okla.

SECURITIES DISTRIBUTOR solicits inquiries from corporations interested in raising capital through marketing of corporate securities. Booklet on request. Brookworth Co., Inc., 110 East 42nd St., New York, N. Y.

Additional Classified Wants on Page 137

New Rush for Heating Oils at Chicago

Cars in Transit Selling at Premium. All New Business Taken Subject to Delays. Gasoline Undertone Stronger

By J. B. Waldo

CHICAGO, Feb. 18.—The cold wave that swept over this territory Sunday caused a rush of orders for all grades of oil used for heating from the light distillates down to the heavy fuels. There was a ceaseless demand for car numbers on previous orders and some new business was placed although many buyers would be in good shape if they could secure deliveries. Refiners are shipping in one to two weeks from receipt of orders and the cars are coming through with some delays. Cars in transit were selling at premiums Monday and all new business was taken subject to delays if taken at all. Top prices were paid for material and in many cases other material than that ordered was accepted by the buyers as the only oil available. Some refiners with their own stations are having all that they can do to keep their own stations supplied. Some of these state their own distribution has been double what they had planned. There was a good inquiry for industrial fuels and the heavy gravities were strongly held. Refiner after refiner is dropping out of the number that can make reasonably prompt shipments. Buyers were much less particular as to the grade or the source of the oil supplied and some even waived the zero specification and agreed to take usual pour tests.

The fuel oil market showed all the characteristics of a sellers market on Monday. Generally the buyers were caring for their needs over 30 to 45 days which would take them to the first of April. Outside of the fuel oils there was little activity in the market at the beginning of the week.

Kerosene was strong, some refiners advancing their price to 5½ cents. The gasoline market seemed to have a little stronger undertone as some of the refiners who had been naming attractive prices were asking an eighth more than at the close of last week for the U. S. Motor grade. There was no activity in the spot demand but more interest was shown in future conditions and prices. Some of the distributors in the surrounding territory to the north of Illinois are practically closed down. One company operating some 30 stations stated that its present gallonage was less than one-sixth of what it could reasonably expect at this season of the year.

There was no real change in the local gasoline market last week. The winter since the first of this year has been hard on the country trade—and on the city dealers too for that matter—although in the city there are more cars that must run each day no matter how icy the pavements or high the snow piles. Gasoline consumption has been greatly reduced in this territory. Bad roads have made it impossible in many parts to send out tank wagons on regular trips. Some have resorted to light trucks and even to light cars with a tank installed to meet emergency demands.

In direct contrast has been the demand for domestic burner fuel. In this department the consumption has been heavy and the trade has had trouble in getting needed material. Practically every tank wagon distributor of furnace oils has had a larger business than last year. Most of this came from the colder weather and part from the increase in the installations.

The gasoline demand continues very light and the price situation unsettled by free offerings of U. S. Motor gasoline to jobbers and to marketers at prices materially less than the quotation made by such of the major refiners as are holding to their price. Some are doing so but only when their own stocks of gasoline are low and they are willing to accumulate additional supplies.

Ask 7 Cents, But Sell None

The sales office here of one of the largest refining organizations in stating that they were holding to the 7-cent price added that they were not selling any and that they did not care because they wanted to add to their own stocks. Another stated that his company while trying to sell at 7 cents had found it practically impossible to move any volume of gasoline at that price because of competition from other refiners who were selling direct to the jobbers and that his company would meet competition as low as 6¾ cents. It is claimed by competing companies and by numerous buyers that this organization has "dumped" gasoline at 6½ cents. Some sellers have quoted and sold good material at 6½ cents in quantities sufficient to meet the demands of many jobbers.

During the last week several jobbers stated that they had been able to purchase the needed supplies in no case in any large amount, at the price named and that they had offers at a low price, but did not avail themselves of these as they were not sure of the quality. One offer was made from Tulsa of 6⅛ cents for "56-58 437 U. S. Motor gasoline, doctor and corrosion test." There would be a purchase charge in addition to the price of $5 on each car purchased through this source. West Texas gasoline was offered for resale at 6 to 6¼ cents according to the refiner and the lower price does not always indicate the inferior material but rather the necessity for business.

Accumulating at Refineries

Gasoline is admittedly accumulating at the refineries and some of them have no facilities for carrying more than a small stock at the refinery.

There is a general impression that stocks at the jobbers' stations are low. Some jobbers say they are willing to have their tanks go dry. Others state that they have a little more gasoline on hand than they usually do at this time. Some of the sales offices here have made a more or less complete check of conditions in the country and they believe that stocks are small. The demand has been so light and the traveling so bad that some of the sales offices have called all their men in from the road. Traveling by automobile is difficult in practically all the territory and impossible in some regions. Many customers are not readily reached by train or trolley. These reports from sales forces are therefore incomplete but so far as they have been made they show small stocks on hand and presumably a like condition generally prevails.

New Factor in Situation

What will happen when the jobbers begin to fill their tanks would be an easy question to answer were it not for the increased offerings of gasoline from sources which in previous seasons have not been in a position to supply a material part of the demand. This source of supply is chiefly the West Texas refining industry. Before there was a single refinery in West Texas there was ample refining capacity in the country to fill all usual demands from domestic and foreign consumers, with an excess that would have provided for the normal annual increase. On top of this supply comes the output of some 30 refineries, most of them small, it is true, but some of large capacity.

A few new plants will begin to operate early in March which will have an output of between 35 and 40 cars of gasoline daily. The managements are looking to the city as the marketing point for their product. This is only an example of the competition that dealers in the territory rely on to keep refinery prices from making such advances as to endanger their profits under the present tank wagon scale.

Ohio a Dumping Ground

Conditions in the territory to the east of Chicago continue bad. Prices are being made that are only possible by the low freight rates, which make of Ohio a dumping ground. Some of this cheap material is now coming across the border into Indiana just as it has been crossing into Michigan and one large refinery is reported to be back of an organization which is seeking contracts with Chicago dealers. The management of the selling organization has stated that their source of supply is a refinery located near New Orleans. The rail freight is not favorable.

It may be that this is the entering wedge and that it is hoped to develop a large trade when the Lake and Gulf water way is ready for operation in about 15 months if all goes as planned by the builders of the deep water traffic system. The trade here look on this move with some apprehension. When the present barge system from St. Louis to New Orleans is extended to this city the railroads which will suffer some loss in freight will be likely to ask for reduced rates on their lines to enable them to compete. This is the reason for the low freights from New Orleans to Cincinnati and although there is now no real competition by water to that city the roads are maintaining the low competing rates. Under the proposed petroleum tariffs a higher rate to Ohio points from New Orleans is planned. This will be strongly contested for as one refiner said the new rate would just about put his plant out of business.

Higher Tests Moving Slowly

The higher tests have been moving slowly. The total volume of gasoline business being done is so reduced that the amount of the demand for the higher gravities is meager. Some refiners have been holding for 7½ cents for the 60-62 400 endpoint and for 8 to 8¼ cents for 64-66 375 endpoint, but these prices are being shaded when a possible sale is in prospect. There are apparently stocks of these gravities that were not required by recent export orders, possibly because the gasoline did not quite meet export specifications. There was demand for the A and AA grades of natural gasoline here being used by jobbers for blending, but the other grades were not inquired for. There was little change in natural gasoline prices on the quantities required by these sales.

Kerosene Firm

Kerosene was very firm all of last week and prices were a little higher, 5¼ cents being the low of the market for the 41-43 gravity. This price was asked for resale and many sellers quoted between 5⅜ and 5½ cents. Stocks are light at the refineries and one refiner suggested that if the markets kept on the way they were going kerosene might sell at higher price than gasoline. He suggested that with a near approach of the two materials the average tractor user would run on gasoline instead of kerosene.

There was a scramble for distillates last week and the demand extended to all grades of oil which could be used for furnace material. There had evidently been some overselling and at times highest going prices were offered by marketers for even a single car. Many distributors are in bad shape as to stocks and few have as much oil in their tanks as they believe they actually need. Refiners are behind on deliveries but all cars ordered out have not been sold. It is quite common for some buyer who has the oil coming on a contract to order out a number of cars and when the car numbers are received to sell the cars in transit or practically to sell car numbers. Nearly every tank car distributor has cars of distillate or zero gas oil due on early orders but cannot get shipment by the refiner. The season is rapidly drawing to a close. This city has had six weeks of subnormal temperature and it can hardly last more than four weeks longer. Then the demand will begin to taper off rapidly. Already distributors are watching the stocks closely.

Good Gas Oil Hard to Buy

In the gas oil group, there is about the same condition as in distillates. The demand is even larger than for distillates and desirable material just as hard to buy. Cars of zero straw gas oil sold at 3½ cents and more could have been sold if the cars could have been obtained. Possibly higher prices were paid for occasional cars. A little more would have been paid if necessary to effect the purchase. Some of the refining offices state that their customers will not believe it when they tell them that they have none of the wanted material and cannot book orders for early delivery. This insistence that refiners could fill orders if they would is prompted by the need of those seeking to place orders and backed by the common belief that the refiners are shipping late orders because of the higher return and allowing the earlier placed orders to wait. Refiners here insist that they are delivering strictly in the order in which the orders were placed. One refiner closed out all available dark zero gas oil in the plant at 3⅜ cents. For the 28-30 fuel oil $1.25 a barrel was freely bid with no results as the entire supply is closed out and the new material is more than covered by contracts. The demand for the high gravity fuel oils is believed to be partly responsible for the light offerings of the straightrun gas oil right now and firm as to price. Actual stocks are reported to be large but much of the supply is being held for cracking and is not being marketed.

Zero Oil Strong

The heavy industrial fuels are profiting something from the demand for the furnace oils and also have their own strength in demand for heavy heating oil caused by the cold season. The present inquiry is wholly for the zero oils and the strength is in that product. The high cold test oils are a drug in the market and good 18-20 with an ordinary cold test was bought here last week at 4[illegible] cents.

A leading refiner who has been a close source of supply for the 18-22 low cold test fuel oil in this section has sold up his output until the middle of March and is asking an advance of 5 cents a barrel, the new price being 60 cents. As soon as previous orders are filled which have been taken at as low as 52½ cents by this refinery and at 47½ cents by other refiners the price undoubtedly will advance provided there is the same large demand for the zero oils. When the weather permits the shipment of the fuel oil with ordinary cold test prices will have to be adjusted to the new conditions. But right now the low cold test oils are firm at small increases in cost to buy. Take the 24-26 gravity. The ordinary cold tests are available at 6[illegible] cents and the low cold tests bring 7[illegible] cents, but this premium will disappear as soon as the weather becomes a little warmer. The normal average daily tem-

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East Coast Lubs and Wax More Active

Other Products Sluggish. U. S. Motor Gasoline Weak at 10 Cents. Steady Kerosene Movement in Domestic Market

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Feb. 18.—East Coast refinery products have been marking time the past week, with little material change in either direction. Gasoline is barely maintained at the recently reduced level of 10 cents a gallon, and operators are inclined to look for a further reduction, to meet the price cutting which is now generally prevalent. Lub oils and wax have taken on more activity, and show a little firmness, and kerosene continues to move well at steady prices. Other products, however, are rather sluggish, with the price tone somewhat unsettled.

Tank Car Gasoline

Continued weakness in U. S. Motor gasoline at Bayonne refineries is reported this week, although the volume of trading has shown some improvement. Leading refiners are holding the market at 10 cents per gallon, although considerable business is being put through at 9¾ cents. Weather conditions have taken a turn for the better, and jobbers are operating in the spot market in somewhat larger volume. Much of the current business with distributors, however, is on marginal contracts which net the jobber a much better profit than on gasoline bought in the open market.

There is considerable uncertainty in market circles regarding the chances of maintaining the tank car quotation at 10 cents a gollon, and some talk is heard regarding the probability of a general decline to 9¾ cents in the near future. Sellers are watching the market position closely, and are prepared to meet serious competition wherever it develops. It appears to be felt by leading interests, however, that the stronger position of the export market will in time be reflected in a more stable domestic market for the U. S. Motor grade, and refiners are pinning thir hopes for a steady gasoline market in the early spring months to this theory.

High-test gasoline continues an important factor in the current market situation, and refiners are concentrating much of their selling effort on their premium fuels. Owing to this condition, the demand for California U. S. Motor as a base for these special fuels continues active, and considerable quantities of the Pacific Coast motor fuel are being moved eastward by the large integrated companies.

Tank Wagon Gasoline

With the ratification of the industry's new code of ethics by executives of leading oil companies meeting in St. Louis during the week, the outlook in the tank wagon division of the market has brightened materially. With the code effective, the next step will be to get the various market companies to sign the accord arrived at, and following this, it is believed that conditions in tank wagon markets will show an early change for the better.

Conditions in the tank wagon markets of the East are still far from stabilized, and it is generally believed that the various marketing interests in this area have been jockeying for position, pending ratification of the code of ethics, which puts a stop to many of the "sales promotion" activities which have been applied to gasoline marketing operations in the East during the past several years.

At present, there is still more than a normal spread between the tank wagon quotations prevailing in different sections of the East, notably New York and New England territory. This is due in some measure to competitive conditions, and reflects likewise the seasonal variation in consumption in some sections of the territory. With the start of the spring buying movement in sight it is believed that early action will be taken to re-establish stable markets in this area.

Notwithstanding the approval of the provisions of the code of ethics, sharp selling competition looms in the East Coast area for the current year. Much of this extreme competition will be witnessed in New York and New England. Shell is in the territory in a large way, with acquisition of the New England Oil Refining properties, and Standard of New Jersey has invaded New York and New England for the first time with its recent purchase of the Beacon Oil Co. With both of these strong interests in the field, Standard of New York will face stronger competition this year than it has ever before been called upon to meet in its home markets.

Aside from the entry of these two leading factors in the New York company's territory, small independent operators are attaining a more prominent place in the marketing picture, notably in metropolitan New York. In some quarters of the trade, the belief is expressed that a number of these small independent chains will be absorbed by the larger marketing interests in the course of the year.

Kerosene

Strong and active markets for tank car kerosene prevailed this week. Water white is strongly held at 8½ cents per gallon in tank car lots, f.o.b. Bayonne refineries. Jobbers have been in the market for water white in large quantities throughout the week and tank car movement has been heavy. Continued cold weather is tending to hold consumption at peak levels for the season thus far, and most refiners are being forced to cut into their surplus holdings to keep deliveries abreast of orders.

Tank wagon sales of kerosene are also running into large totals, with the market well maintained at 15 cents per gallon. Marketers are being forced to keep their tank trucks running overtime in many instances to keep their distributing trade supplied, and while it is generally felt that peak consumption for the season is about at an end, the outlook for a good volume of business over the spring months is considered favorable.

More activity is reported in this branch of the market this week. The leading refiner is quoting 32-36 gas oil at 5¼ cents a gallon, with other refiners quoting this oil at 5 cents. Large artificial gas companies are drawing stocks in a large way and contract movement is running at record high levels in a number of instances.

Low-grade gas oil prices are steady. About 4⅝ cents represents the inside market on the lower grades, with the market ranging thence all the way up to 4⅞ cents. A heavy volume of trading on this oil for delivery on furnace oil contracts is in progress.

Paraffin Wax

Refined grades have stiffened a little, and the market this week has taken on more activity. Domestic buyers have evidently used up a large part of their warehoused holdings and have been inquiring for prompt shipment supplies in fair volume this week. The export trade is also showing more interest in offerings. The market on spot is fairly steady at 5⅜ cents a pound for 120-122 a.m.p., 5⅝ cents for 125-127 a.m.p., 6⅜ cents for 130-132 a.m.p., 7⅛ cents for 133-135 a.m.p. and 7⅝ cents for 135-137 a.m.p. Stocks of the latter melting point continue rather light, and some sellers are not willing to book under 7¾ cents.

White crude scale remains in soft position, and has been sold at 3.50 to 3.55 cents per pound this week, as compared with the going price of 3¾ cents per pound during the preceding week. Export operators are showing interest in crude scale, but their price views are about a quarter cent under the figures at which refiners are willing to sell.

Eastern refiners are soliciting future business at current going quotations in most cases, although in a few instances refiners have retained their bullish views and anticipate another price advance in the near future. Consumers, as a rule, are not showing much interest in the later positions, in so far as any large volume trading is concerned, and speculative operators are likewise unusually conservative at the moment.

Petrolatum

The pharmaceutical trade has been buying snow white in moderate volume this week, and the market holds steady at 8½ cents a pound, in car lots, f.o.b. Bayonne. Lily white is also coming in for a good call, with refiners continuing to hold at 7½ cents. The amber grades remain rather sluggish, with trading confined to small quantities. Inquiry from the export trade has again fallen away, and movement into export channels is lagging behind.

Diesel Oil

Contract withdrawals are holding up well this week, and the market is well maintained at $2 per barrel, in bulk f.o.b. Bayonne refinery terminals. The bulk of the business consists of deliveries to the large marine interests, but with the Florida season on in full swing, more inquiry is reported from the pleasure yacht trade, and consumption in this quarter is expected to pick up steadily until midsummer. While individual Diesel bunkering requirements of these yachts are small, the aggregate gallonage of this class of business runs into large totals, and refiners are devoting an increasing amount of attention to sales in this field.

Industrial demand for Diesel oil has been rather routine throughout the week. Production is reported well in hand in the East Coast area, and the position of Diesel oil in this territory, as well as other principal refining centers, appears much better than that of many other refined oils.

Fuel Oil

Conditions in this branch of the market have undergone no important modification this week. Bunker "C" continues held at $1.05 per barrel, bulk, at refineries, and $1.10 a barrel barged alongside within the harbor limits. While this type of oil is unquestionably in heavy oversupply, with no relief in sight for the near future, refiners have met with a considerable degree of success in maintaining their market with the large shipping interests. However, with the market at Gulf Coast ports in easy position, there is still considerable opportunity for "sharpshooting" at the $1.05 price on the part of independent operators, and refiners in this area are keeping a close watch on the situation and are prepared to protect their contracts.

A few months ago, probable curtailment of Venezuelan production was one of the strongest talking points of the refinery sales department in lining up fuel oil contracts for 1929. Since that time, however, the situation with respect to Venezuela has shown no change for the better. On the contrary, crude production has continued on the increase and has tended to add to the reserve holdings of fuel oil in the Atlantic Coast area. However, with the large new Aruba refinery of Pan American scheduled to go into production within the next few months, East Coast refiners expect that some of the fuel oil load will be taken off the East Coast marketing area. In addition, the curtailment in the shipments of heavy Mexican crude to Atlantic Coast refineries is expected to make for a change for the better in fuel oil markets.

Industrial buying of fuel oil is still an important factor in the market position here, and is helping to hold the market at present levels. Weather conditions during the past fortnight have been exceptionally favorable for heavy consumption of furnace oil, and the large marketing interests have been moving heavy quantities of furnace oil into consuming channels. While much of this movement has been against standing contracts, considerable new spot business has also made its appearance during the first half of February.

Lubs

A slight pickup in buying is reported this week, but business has not been sufficiently large to affect the price basis. Export buyers are in the market for cylinder oils in better volume, but the large buyers are still pressing for lower prices and are not operating heavily at the current schedule of quotations. Refiners continue to show rather steady price views, however, and prices on all cylinder oils are unchanged at the levels in effect during the previous week.

Red and pale oils are rather sluggish on spot. Refiners report that buyers are adhering to their hand-to-mouth policy on these oils, no prices revisions materializing during the period. Paraffin oils are reported in rather liberal supply at the Gulf, and this situation is having some effect on the spot market position.

Export Markets

The first break in the export gasoline schedule occurred this week when navy was sold at the Gulf at 8 cents per gallon, one-half cent under the established market. The sale involved a cargo of from 6,000 to 8,000 tons of navy and 64-66 375 endpoint, the latter going at 10 cents a gallon. Thus far, there has been relatively little open market buying of gasoline since the price advances of last month, export operators continuing their endeavor to wait out the market. The current schedule on bulk gasoline is as follows:

	Cts. gal. N. Atlantic	Gulf
Navy	9½	8½
60-62 390 endpoint	10¾	9¾
64-66 375 endpoint	11	10
66-68, aviation grade	14	13

Following the sale referred to above, the market for navy at the Gulf has again firmed up to the 8½-cent level.

Cased gasoline is moving in seasonably large volume at 26.40 cents per gallon at Bayonne refineries.

Kerosene inquiry for shipment to foreign markets has picked up somewhat this week, and the market continues well held. The cased product is firm at 17.65 cents a gallon for standard white and 18.90 cents for water white. Prices on the bulk product are as follows: North Atlantic ports, prime white, 7¾ cents per gallon; water white, 8¾ cents; U. S. Gulf, prime white, 6¾ cents; water white, 7¾ cents per gallon.

Export inquiry for fuel oil continues sluggish. Sellers at the Gulf are quoting Bunker "C" in cargo lots at 68 cents per barrel, although the larger factors are still quoting higher than this level.

Demand for paraffin wax in export quarters has been more active, and the market on fully refined is somewhat firmer. Crude scale, however, remains in easy position.

Lub oils have also been moving out in larger volume into export channels this week, although operators in most instances are still holding down operations to small quantities for immediate shipment. However, foreign buyers have

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Practical Suggestions in Refining

By W. T. Ziegenhain

A.P.I. Asks for Open Meeting on Proposed Gasoline Changes

A request that an open meeting be held March 8 in Washington to discuss the proposed changes in the Government's gasoline specifications has been made by the American Petroleum Institute in a letter written by W. R. Boyd, executive vice president of the institute, directed to Dr. G. K. Burgess, director of the Bureau of Standards and chairman of the Federal Specifications Board. This request followed after it was seen that little progress was being made in the separate meetings being held by the various associations, committees and the advisory board itself. The Oil and Gas Journal on February 7, page 120, traced the development of the proposed revision in the specifications from the time Dr. H. C. Dickinson, of the Bureau of Standards and representative of the Federal Specifications Board, presented the suggestion in November that a winter and summer grade of gasoline be adopted instead of continuing with the present U. S. Motor specifications. These proposed specifications did not meet the approval of the members of the advisory committee because they called for two entirely different gasolines, both of which were more volatile than the U. S. Motor grade and the winter specifications called for a more volatile gasoline than the average having been distributed during any winter for the last 10 years. Obviously, to adopt such a change would materially increase the cost of producing the gasoline by decreasing the yield and there was a question whether the proposed specifications would guarantee a better gasoline from the standpoint of performance. On the other hand it was quite apparent that the average gasoline was more volatile over the first part of the distillation curve than that required under the present U. S. Motor specifications. In a counter proposal, the D2 committee of the American Petroleum Institute in December ignored the original winter and summer specifications and outlined two new sets, one calling for a change in the regular U. S. Motor grade and the other establishing a "Premium" grade. The respective requirements are tabulated below:

Distillation—	Proposed U. S. Motor grade	Proposed Premium grade
10 per cent	176° F. max.	159° F. max.
50 per cent	284° F. max.	266° F. max.
90 per cent	392° F. max.	374° F. max.

In this proposal the only change in the present U. S. Motor specifications was that the initial point of 131 degrees Fahrenheit maximum was eliminated and a 10 per cent specification calling for a maximum of 176 degrees Fahrenheit was substituted for the present 20 per cent maximum of 221 degrees Fahrenheit.

The D2 committee also suggested the 50 per cent point be raised on the "Premium" grade to 266 degrees Fahrenheit, whereas the technical committee had recommended 257 degrees Fahrenheit as the maximum. Shortly after this the technical committee, through Doctor Dickinson, issued a new set of suggested specifications for each the U. S. Motor grade and the newly proposed "Premium" grade which showed that the suggestions of the D2 committee had not been followed. The new specifications were:

Distillation—	Proposed U. S. Motor grade	Proposed Premium grade
10 per cent	140 to 160° F.	122 to 158° F.
50 per cent	284° F. max.	257° F. max.
90 per cent	392° F. max.	356° F. max.

An objection was immediately raised against the proposed minimum specification for the 10 per cent point on the

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STABILIZER ON PRESSURE STILL REPLACES VAPOR RECOVERY PLANT

Utilizing the existent pressure and available heat within a pressure still system, J. M. Wadsworth, general manager of refineries for the Independent Oil & Gas Co., has designed a stabilizing and rectifying unit intended to replace the more elaborate conventional gasoline recovery systems now in general use. The majority of the cracking stills operate at pressures above 150 pounds and this is sufficient to cause a relatively large volume of gas to be dissolved in the gasoline and is conducive to higher evaporation losses as the gasoline is handled or stored in the refinery.

Pressure still gasoline with few exceptions shows a lower recovery, according to the A.S.T.M. distillation test than the ordinary straightrun gasoline and the problem of the refiner who is operating a pressure still has been made similar to that of the natural gasoline manufacturer as gas-locking and high vapor tension comes to the front for more intensive study. Likewise as the percentage of cracked gasoline increases with the increasing number of pressure still installations and the more severe conditions operating on the oil to induce cracking, the problem and need for stabilization becomes more important.

Realizing these facts, the equipment was designed to give a maximum of flexibility in conjunction with the pressure still operations and simply consists of an efficient fractionating tower controlled by a reflux inlet at the top and a reboiler coil in the bottom.

It is an easy matter to add such a stabilizing unit to the ordinary type of cracking unit especially where the rectification is done under a relatively high pressure, because the regular processing is not interfered with. The method of operation and the hookup used by Mr. Wadsworth is shown in the accompanying sketch which also shows how little the ordinary operation is altered.

Starting with the processing at the point where the hot charging stock enters the cracking chamber, the light fractions rise as a vapor and are carried over into the fractionating tower while the heavy, uncracked residue is continuously drawn off at the bottom and flashed if such a system is provided. This is nothing more than the ordinary method of operating. In the fractionating tower the heavy fractions are condensed out and are drawn off and pumped through a coil in the bottom of the stabilizing tower where a portion of its heat is utilized in stabilizing the gasoline. A by-pass on the reboiler section in the base of the stabilizing tower allows a close control on the amount of oil circulated through the reboiler, or the reboiler may be shunted entirely.

The lighter fractions, including the gasoline vapors, and fixed gases pass from the top of the fractionating tower and are cooled as they pass through a heat exchanger running cold charging stock. After being cooled they pass into the stabilizing tower and here the process simply resolves itself into maintaining a set of conditions whereby enough heat is supplied by the reboiler to drive off the dissolved gases and any light unstable fraction not desired in the finished gasoline. The stabilized gasoline is taken off the base of the tower, a float control type of valve regulating the flow. The uncondensed gases and vapors leave the tower and pass through a heat exchanger and due to this cooling a portion of these vapors condense and drop out into a small separatory tank. This liquid fraction may be recovered as a special fuel as liquefied gas or it may be allowed to pass off as a vapor or gas to be burned but in either case it acts as a control medium at the top of the tower where it is continuously pumped in as a reflux material.

From this separator, the gas passes through a pressure relief valve and is allowed to enter the regular gas fuel system for the plant.

This system is expected to cost much less than the ordinary absorption type or compression type of vapor recovery systems and should show a higher yield for the plant as a whole, especially if the regular method of recovering the vapors calls for a distillation of the absorbing medium in order to recover the gasoline. Mr. Wadsworth has secured patents covering the design and operation of the stabilizing unit as applied here.

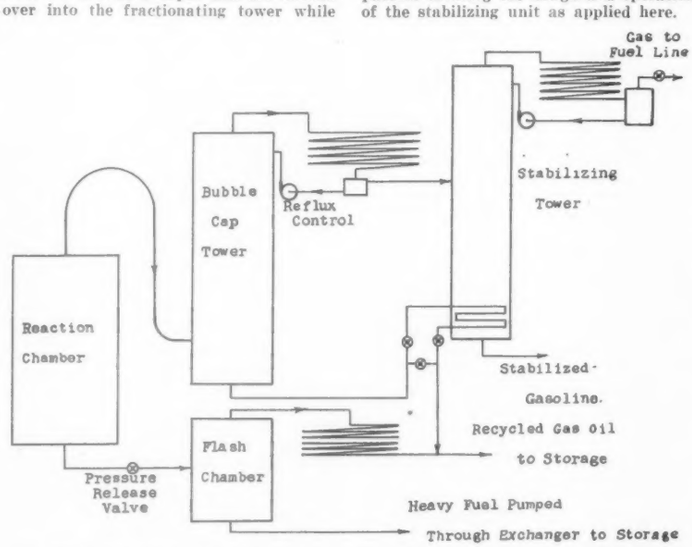

Diagram showing how the stabilizing tower is connected up with the ordinary pressure still system. The ordinary 1,000 to 1,500-bbl. pressure unit would require a stabilizing tower about 3 feet in diameter and containing from 20 to 25 bubble cap sections.

Recent Patents

MIX VAPORS TO DECREASE LOSSES

1,685,501. Process for Recovery of Vapors. Robert T. Osborn, Richmond, Calif., assignor, by mesne assignments, to Standard Oil Co. of California, San Francisco, Calif., a corporation of Delaware. Filed July 11, 1922. Serial No. 574,183. 2 Claims. (Cl. 196—12.)

2. A process of recovering escaping or waste petroleum gases which are by themselves substantially uncondensible at atmospheric pressure and temperature, which consists in passing such gases unaccompanied by vapors condensible at or below the pressure and temperature at which said gases can be condensed, into vapors from a distilling unit operating below cracking temperature and pressure to convert higher boiling point oil into vapors which are condensible at atmospheric temperatures and pressures and which vapors contain substantially no constituents of which said gases are composed, thereby creating a vapor condition such that substantially all of said vapors and gases can be condensed at atmospheric temperatures and pressures, and condensing the said gases together with the said vapors, said gases being retained in the same molecular state from the time of mixing until after their condensation.

INCLINED PAN IN STILLS

1,700,709. Mineral-Oil Vaporizer. Arthur E. Pew, Jr., Bryn Mawr, Pa., assignor to Sun Oil Co., Philadelphia, Pa., a corporation of Pennsylvania. Original application filed June 19, 1925. Serial No. 38,184. Divided and this application filed February 27, 1926. Serial No. 91,045. 3 Claims. (Cl. 196—128.)

1. The combination, with an elongated still chamber, of an inclined oil vaporizing pan extending longitudinally therein, means to supply oil to the upper end of the pan, and a reticulated cover overlying the pan, the openings formed by the reticulated cover being in free communication with the chamber space outside the cover, thereby allowing free escape of oil vapors while minimizing foaming of the oil and escape of liquid particles with the oil vapors from the oil stream during the flow of the oil along the pan.

ROTATING SHAFT USED

1,680,541. Oil-Cracking Still. William Thornhill Hancock and Walker Hancock, Long Beach, Calif. Filed September 20, 1926. Serial No. 136,443. 1 Claim. (Cl. 196—122.)

In combination with a sloping still tube having a vapor outlet at its higher end and residue outlet at its lower end, a rotatable shaft arranged centrally longitudinally in the tube in suitable bearings, a tube of reduced diameter extending centrally from one end of the still tube, a stuffing box at the end of said smaller tube, and the shaft extending out through said stuffing, a plurality of ball confining disks set rigidly on said shaft and longitudinally spaced from each other, said disks lying in parallel planes making acute angles with the shaft, pairs of ball carrying plates set between adjacent disks in a radial longitudinal plane, the plates of each pair being at opposite sides of the shaft, the inner edges of the plates being spaced from the shaft and the outer edges of the plates and the peripheries of the disks being slightly spaced from the tube walls, and sets of free balls in the spaces between adjacent disks and at opposite sides of the pairs of plates.

START SEVERAL PLANTS IN GREATER SEMINOLE

(Continued from Page 130)

the output of the Greater Seminole area.

New plants also are a factor in the Maud and St. Louis-Pearson areas. In the North Maud area (Section 11-8-5) the Empire Oil & Refining Co. is starting up with an initial production of 9,000 gallons daily. In the same general area the Barnsdall Oil Co. on Tuesday started operating an oil absorption plant. Its initial output is placed at 12,000 gallons daily.

In the St. Louis area (Section 7-8-5) the Amerada Petroleum Corp. has started operating its new plant. The plant at present is making 15,000 gallons of gasoline daily. This will be increased to 25,000 gallons by the end of the month. The plant has a rated capacity of 40,000 gallons daily.

In the South Little River area (section 5-7-7) the Victor Gasoline Co. is now operating a 6,000-gallon plant. Late in December the company started operating a 16,000-gallon plant in the Maud area. In addition the company has plants in the Seminole City, Bowlegs and Earlsboro Pools. The output of the Seminole City plant is to be increased.

In the north Maud area (Section 7-8-5) the Shell Petroleum Corp. (Roxana) and The Texas Company will complete a jointly owned plant about March 1. This plant will have a capacity of 20,000 gallons daily.

The increased output from plants which are just starting up and those under construction indicate that the gasoline production of the Greater Seminole area will be increased around 50,000 gallons daily within the next 30 days. Better weather conditions also will add to the production of some of the older plants.

EAST COAST LUBS AND WAX ARE MORE ACTIVE

(Continued from Page 135)

been out of the market to a considerable degree for several weeks back and are being forced to do a substantial volume of replacement buying now.

There was no change in the export situation affecting other refined products this week.

Petroleum Exports

The following table shows principal exports of petroleum and refined products from New York during the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	Feb. 9	Feb. 2	Jan. 26
Gasoline	1,150,000	706,000	850,000
Naphtha	630,000	2,071,000	2,629,000
Kerosene	590,000	158,000	440,000
Fuel oil	13,500	23,000	4,000
Lub. oil	1,788,700	4,155,000	2,985,000
Petroleum ref.	1,653,000	3,460,000	1,330,000
	Pounds		
Petrolatum	23,000	91,000	53,000
Paraffin wax	389,000	1,847,000	1,623,000
Refined		40,000	
Scale		497,000	1,444,000
Lub. grease	1,275,000	1,648,000	2,629,000

Imports

Imports of crude and refined oils at the principal United States ports for the week ended February 9 totaled 2,257,000 bbls., a daily average of 322,428 bbls., compared with 1,803,000 bbls., a daily average of 257,571 bbls. for the week ended February 2 and a daily average of 267,929 bbls. for the four weeks ended February 9. Details follow:

(Barrels of 42 gallons)

	Bbls.
At Atlantic Coast ports—	
Baltimore	187,000
Boston	65,000
New York	1,174,000
Philadelphia	177,000
Others	291,000
Total	1,894,000
Daily average	270,571
At Gulf Coast ports—	
New Orleans and Baton Rouge	363,000
Total	363,000
Daily average	51,857
At all United States ports—	
Total	2,257,000
Daily average	322,428
Daily average 4 weeks	267,929

Included in the week's receipts of crude oil at New York were the following shipments:

To Standard Oil Co. of New Jersey, 115,000 bbls. on the Charles Pratt from Mamomal; 118,000 bbls. on the Victolite from Mamomal; 119,000 bbls. on the Camadolite from Lobitas; 118,000 bbls. on the E. T. Bedford from Mamomal; and 100,000 bbls. on the Gedania from Mamomal.

To Pan American Petroleum & Transport Co., 72,000 bbls. on the Harold Walker from Aruba; 69,700 bbls. on the Frederick Ewing from Aruba; and 55,000 bbls. on the Mantilla from Aruba.

To Gulf Refining Co., 75,000 bbls. on the Gulfpoint from Las Piedras; 95,000 bbls. on the Agwihavre from Las Piedras; 63,000 bbls. on the British General from Las Piedras; 80,000 bbls. on the Swiftsure from Las Piedras; and 115,500 bbls. on the Gulfbird from Las Piedras.

To Tide Water Oil Co., 116,100 bbls. on the Tamcahua from Las Piedras.

The tanker Levant Arrow arrived at New York during the week with a cargo of 92,000 bbls. of refined products from Los Angeles, consigned to the Standard Oil Co. of New York.

California Oil Receipts

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended February 9 totaled 731,000 bbls., a daily average of 104,429 bbls., against 400,000 bbls., a daily average of 57,143 bbls. for the week ended February 2, and a daily average of 71,643 bbls. for the four weeks ended February 9. Details follow:

(Barrels of 42 gallons)

	Bbls.
At Atlantic Coast ports—	
Baltimore	100,000
New York	316,000
Philadelphia	272,000
Others	43,000
Total	731,000
Daily average	104,429
Daily average 4 weeks	71,643

Distribution of total California oil receipts is as follows:

Gasoline	654,000
Gas oil	77,000
Total	731,000

There has been a good inquiry for California gasoline for shipment eastward this week, with the market on the Pacific Coast in firm position. With the recent acquisition of Walburn Petroleum Co. here by the Richfield Oil Co. of California, most of the leading California companies now have eastern connections, through integration. As a result of this situation, less open market trading in California gasoline is expected, the large companies moving motor fuel to the Atlantic Coast on a regular schedule for distribution through their Eastern connections.

Another factor that is expected to make for a heavier movement of Pacific Coast motor fuel to the Atlantic Seaboard is the recent organization of Shell Eastern Petroleum Products, Inc., by Royal Dutch-Shell interests. This company, which has acquired the refining and marketing properties of the New England Oil & Refining Co., is expected to market large quantities of Shell Union's gasoline production in the East, as well as handling considerable of the Venezuelan production of the Royal Dutch-Shell group.

NEW RUSH FOR HEATING OILS IN CHICAGO AREA

(Continued from Page 134)

perature for this season of the year is now given by the weather bureau as 26 degrees while the actual average temperature is and has been below normal almost continuously since the beginning of 1929.

Lubricating Oil Business Light

The lubricating oil business is light. In motor oils the business is that of replenishing stocks of winter oils and as the driving has been limited the demand is light. The industrial demand is good. Refinery stocks are firmly held. Just a year ago Pennsylvania bright stocks were selling at 27 cents. Today they are 38 cents. A year ago neutrals brought 33 cents, but today the price is around 20 cents. Makers of neutral oils might emulate the glycerin manufacturers' example and find a new use for their product. All stocks are firmly held with the single exception of neutrals.

There has been little new in the distributing departments of the industry. Some cutting of prices has developed and at several small points in the territory the service station price has been reduced to the tank wagon price or below it. This is not a sign of anything in particular. It is just as necessary for some jobbers to keep their stocks moving as it is for some refiners and they are very apt to take the same method and cut prices.

Many of the country trade have stated that their furnace oil business has been almost a life-saver this season for their gasoline business was not enough to keep them alive. Dealers have not been planning any large purchases at an early date. There are some exceptions and occasionally some jobber has placed an order for gasoline for late March or April delivery. They say that they do not see how they can lose any money on these purchases as they bought cheaply.

As a rule the jobbers look forward to a good season so far as the demand is concerned although they are not so sure that it will be a profitable season. Of course those dealers with a 3½-cent marginal contract may find that economies are necessary. Still they should be able to get by on their gasoline sales and the narrow margin will cause them to use their best ideas to sell other items and to do business at a profit.

A.P.I. ASKS FOR MEETING ON PROPOSED CHANGES

(Continued from Page 136)

basis that it limited the range more than needed to guarantee satisfactory performance, and the elimination of the minimum point was later agreed to by the technical committee. However, the committee also included the following motion, which in effect meant the practical inclusion of the respective minimum 10 per cent specifications. The motion reads: "The minimum 10 per cent temperatures of U. S. Motor and U. S. High Volatility gasoline should be held in abeyance for further consideration at the next revision of gasoline specifications with the addition of a provision to the present proposed provision that federal purchasers of gasoline may, at their discretion, reject U. S. Motor gasoline whose 10 per cent temperature is less than 140 degrees Fahrenheit in summer and U. S. Motor gasoline and U. S. High Velocity gasoline whose 10 per cent temperature is less than 122 degrees Fahrenheit in winter."

With these as the last specifications suggested by the technical committee, the Mid-Continent refiners, through the Western Petroleum Refiners Association, have asked that no definite action be taken as yet, and are offering the following set of specifications for consideration:

Distillation—	U. S. Motor grade	Premium grade
10 per cent	176° F. max.	158° F. max.
50 per cent	284° F. max.	266° F. max.
90 per cent	392° F. max.	383° F. max.

GULF COAST MARKET LUBRICANTS LOWERED

HOUSTON, Tex., Feb. 19.—Gulf Coast lubricating oil markets the past week were marked by further efforts of sellers to get business by lowering prices, and the moving spot market Tuesday was somewhat less than the prevailing posted schedules which sellers have sought to maintain, although fully treated products in some cases were quoted from one-quarter to one-half cent above straight filtered material. The competition of the latter grades was resulting in sharp concessions in the treated products. The 200 pale oil was the only grade to show firmness. Some sellers reported a fair movement of lubricating stocks in small lots, but for the most part the demand was not sufficient to dispose of the actual production, and there is some tendency to accumulate stocks. A generally unsettled situation prevailed.

Fuel oils and gas oils were unchanged, the former being inactive as far as spot orders were concerned, practically the only business being in bunkering ships. Gas oils were scarce in the uncracked and low sulphur content grades.

MOONE OIL CO. FORMED

HOUSTON, Tex., Feb. 16.—Organization of the Moone Oil Co., Inc., with $50,000 capital, has been completed. The organizers are: L. Seiss, N. Sutton, W. S. Green, Charles P. Seiss, Ed Seiss and C. M. Moss. The company will operate holdings in the newly opened old Hackberry Dome Field of Cameron Parish, Louisiana.

SECOND LINE TO NEW POOL

The Prairie Pipe Line Co. will lay a line from its Panova pump station near Shawnee, Okla., to the new field near Oklahoma City and the Prairie Oil & Gas Co. will purchase oil in that area. The Oklahoma City Pool is already served by the Empire Pipe Line Co.

CLASSIFIED WANTS

(Continued from Page 133)

GEOLOGISTS

GEOPHYSICAL SURVEYS made with Vertical Intensity Magnetometer. Also combined geological and geophysical reports, if desired. MID-CONTINENT EXPLORATION COMPANY, INC., 727 Giddens-Lane Bldg., Shreveport, La.

INTERPRETATION of Magnetometer results, detailed structure maps made from vertical magnetometer data. Field parties organized and supervised.
M. KEISER, E.E. M.A.I.E.E.
Consulting Geophysicist
Box 171, Ponca City, Okla.

OIL LOCATED before drilling. Geophysical method. Magvibrometer Instrument; take pay in oil. No oil, no pay. Except traveling and testing expenses. 95 per cent accuracy. O. P. Coffin, Caddo, Texas.

FOR SALE—MAPS

NEW MAP OF MID-CONTINENT OIL FIELDS, suitable for pocket or desk top, shows counties and producing areas in Oklahoma, Kansas, Texas, Arkansas, Louisiana and Eastern New Mexico. Postpaid for $1. Kelley Map Co., P. O. Box 1773, Tulsa, Okla.

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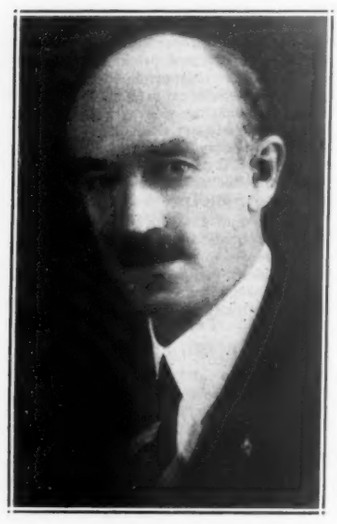
CLASSIFIED advertisements in this section do pay well in money and in extended business relations. This has been proven by the continual advertising that we receive from the men in the oil industry, everywhere.

Brief Items for Petroleum Refiners

C. W. CAHOON ENDS LONG SERVICE IN INDUSTRY

NEW YORK, Feb. 16.—Charles W. Cahoon, president of the Carson Petroleum Co., Cities Service Export Co., and Petroleum Import & Export Corp., has tendered his resignation, effective March 1, and will retire from the oil industry due to ill health.

A prominent figure in the petroleum business for more than 40 years, Mr. Cahoon has attained wide recognition as a marketing expert, particularly in foreign trade operations. During the past



C. W. Cahoon

year, Mr. Cahoon has been in failing health, and some time ago decided to sever his active business connections and take a long rest. While he has made no definite plans for the future, he will leave for Texas on private business and

(Continued on Page 150)

RICHFIELD TO ENLARGE MARKET OUTLET IN EAST

NEW YORK, Feb. 18.—Following recent acquisition of the Walburn Petroleum Co., Richfield Oil Co. is reported making extensive plans for developing business in East Coast area. The Richfield company has a marketing arrangement with Acewood Petroleum Co. of New York and is expected to conclude negotiations shortly for other distributive outlets in the East.

Present plans of the company, it is believed, contemplate establishment of bulk terminals at Philadelphia, Wilmington, Del., and other central points along the Atlantic Coast for distribution of gasoline and other products. The company is expected shortly to announce detailed statement of its expansion program.

SINCLAIR BUYS PURITAN

The Sinclair Consolidated Oil Corp. has acquired the physical assets of the Puritan Oil Co. of St. Louis, an independent jobbing concern. The company has about 50 leased and owned service stations in the St. Louis area and a large number of dealer outlets.

A NEW OIL JOBBER

CHICAGO, Feb. 16.—The Federal Oil Co. has been organized at Madison, Ill., to engage in the distribution of gasoline and petroleum products with $25,000 capital. The members are Manie and Pete Schermer and others.

MARLAND ACQUIRES PRUDENTIAL REFINERY AND MARKET OUTLETS

The Marland Refining Co. became a direct factor in eastern refining and marketing this week when the company announced the purchase of all the assets of the Prudential Oil Corp. of Baltimore, Md. The purchase involves a complete refinery located at Baltimore with market outlets including tankers and tank cars.

The Marland company will take over the properties immediately. The company expects to enlarge its marketing facilities in the eastern states to take care of the increased capacity of the refinery.

The Prudential refinery has been shut down for some time while extensive improvements were being made. Early in 1928 the corporation, which was organized in 1915, was refinanced in order to furnish funds for the plant improvement program. Since that time three pipe stills have been built to handle crude oil and re-run stock. In addition two large Cross cracking units were installed, each having capacity sufficient to handle 2,000 bbls. of fresh charging stock daily. The plant now has a rated crude oil capacity of 10,000 bbls. daily.

In addition to the new installations the refinery has complete equipment for the manufacture of lubricating oils and wax. Four cracking stills of the Dubbs type were installed several years ago and are available for further operation.

The plant is conveniently located for both water and rail transportation. Although no announcement has been made it is assumed that the refinery will be operated with either California or West Texas crude oil or both. The Marland Oil Co. has large production in both areas. The company for several years has operated a terminal at Texas City, Tex. and this will furnish the necessary facilities to handle the West Texas crudes due to seaboard location. South American and Mexican crude oils also are available if needed.

In the marketing end the properties obtained from the Prudential include bulk terminals at Baltimore, Norfolk and Newark and 50 retail stations in New Jersey, Maryland, and other eastern states. With this as a nucleous it is understood that the Marland company will expand both its bulk stations and retail stations outlets to handle the greater part of the refinery output.

The Prudential properties will be operated under the general management of the Marland company with Walter Miller vice president in charge of manufacturing and William Jervis in charge of marketing. R. O. Porterfield, who has been connected with the Prudential refinery for several years, will be general superintendent of the plant.

The Marland company for several years has operated a refinery at Ponca City, Okla. This plant is now one of the largest in the Mid-Continent Field with a capacity of 30,000 bbls. daily. The company has its own distributing facilities in the southeastern states and as far east as Indiana.

SHREVEPORT COMPANY ELECTS NEW OFFICERS

SHREVEPORT, La., Feb. 16.—Merger of the Shreveport-El Dorado Pipe Line Co. and the Shreveport Producing & Refining Co., through purchase of the remainder of the latter's outstanding stock was completed here February 13 at an election of officers of the Shreveport-El Dorado Pipe Line Co., Inc., as the organization now is styled. William Lilley, of Philadelphia, a director and large stockholder in the company since its organization was made president and W. A. Cunningham, of Philadelphia, vice president. B. H. Gray, of the pipe line company, and J. B. Atkins, of the old refining company, also are vice presidents and in active charge of operations at Shreveport. Mr. Gray also is treasurer of the new company and J. E. Atkins, secretary; D. H. Christman, refinery superintendent, and J. B. Atkins were elected to the board to succeed K. E. Merren, resigned as president and director because of his absence from the city for the greater part of the time, and J. D. Wilkinson, of Shreveport, whose death occurred recently.

G. L. ESTABROOK DIES

George L. Estabrook, president of the Crystal Oil Refining Corp. of Shreveport, La., died at his home in Philadelphia February 14 after a long illness. Mr. Estabrook was a member of the banking firm of E. W. Park & Co. of Philadelphia and was a principal figure in the organization of the Crystal corporation.

ALFORD IN MONTANA

T. L. Alford, formerly assistant sales manager of the Transcontinental Oil Co., is now associated with the Western Fuel Oil Co. with headquarters at Great Falls, Mont.

ENDEAVOR TO INTEREST REFINERS IN DUNDEE OIL

MUSKEGON, Mich., Feb. 16.—The possibility that one or more refineries would be built in this territory continued to be one of the main subjects of conversation among oil men during the past week. Operators with wells producing from the Dundee formation are particularly interested in the proposed construction of refineries. On February 7 the Standard Oil Co. of Indiana reduced the price of the Dundee crude oil to 50 cents per barrel and also curtailed the pipe line runs of the Dixie Oil Co., a subsidiary company.

The price was reduced due to the fact that the Dundee crude has been found very difficult to refine despite the fact that the gravity is relatively high. The gasoline from the crude knocks badly when used as a motor fuel.

Several refining companies are investigating the crude oil supply. Producers are co-operating with them so that they can make test runs at their refineries to determine the best method of process-

(Continued on Page 150)

LOUISIANA REFINING

SHREVEPORT, La., Feb. 18.—Louisiana Oil Refining Corp. has disposed of its electric power plant at the Bossier City refinery and will obtain its power from Southwestern Gas & Electric Co., according to R. B. Pierce, manager of the refinery department. The private plant consisted of four 360-horsepower Diesel engine driven generators supplying current to water circulating and condensing systems and to lighting grounds and buildings. Present consumption of energy averages around 500,000 kilowatt hours per month, but with installation of a new 7,000-gallon pump taking water from the Bossier extension of the Shreveport water system this will be raised to approximately 675,000.

BUILD THREE CRACKING UNITS AT BAYWAY PLAN

NEW YORK, Feb. 16.—Standard Co. of New Jersey now has under construction at its Bayway refinery, located at Linden, N. J., three high-pressure, double-unit Tube and Tank cracking units. These coils are the most modern development of the Tube and Tank process, which is controlled by the Standard Oil Development Co., a subsidiary of the Standard Oil Co. of New Jersey.

The present construction program provides that the first of these units will be ready for operation about April 1, next, and it is expected that a production of approximately 2,000 bbls. of gasoline per day will be obtained by the installation.

The company also is continuing its policy of bringing cracking and other refinery equipment at its other refining plants up to date by supplementing existing refining capacity with the most modern types of cracking apparatus.

BYLES SEES NEED OF REDUCED CRUDE RUNS

NEW YORK, Feb. 16.—Lower crude oil and gasoline prices are assured unless the industry acts co-operatively to align supply with demand, according to Axtell J. Byles, president of the Tide Water Associated Oil Co. Mr. Byles, in his annual statement to stockholders of the company, said:

"The year was characterized by substantial increases in the production of crude oil, shut-in production, stocks of crude oil and by an overproduction of fuel oil.

"Gasoline prices substantially improved because of curtailment of production in 1927, which, in turn, resulted from overproduction in 1926 and consequent low prices in 1927 and early in 1928. The industry entered 1929 in about as favorable a gasoline position as it entered 1928 but this position is now menaced by a steadily mounting increase in production. Unless the industry exercises reasonable restraint during the early months of this year in its production of gasoline, the market for this commodity will be seriously impaired.

"Further impairment in the market price for crude oil seems inevitable unless the co-operative efforts now being made to stay the flood of production are successful."

WICHITA FALLS COMPANY WILL OPERATE REFINERY

The Archer Refining Co. of Wichita Falls, Tex., expects this week to start operating a skimming plant in southwest Archer County formerly owned by the Megargel Oil & Refining Co.

The plant, which is located between Olney and Megargel on the G.T.&W.R.R. right of way, and has a daily capacity of 2,000 bbls., was recently purchased by a number of Wichita Falls operators. George G. Golden, formerly of the Victory Petroleum Co., is president and sales manager with headquarters in Suite 802-03 City National Bank Building, and W. H. Yeargin, for several years with the Wichita Pipe Line Co., is secretary and treasurer. The plant will operate on high gravity crude oil from Archer County Fields. It will refine gasoline, naphtha, kerosene, gas oil and fuel oil.

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

CHARCOAL TEST FOR GASOLINE CONTENT NATURAL GAS

I would like to have information as to where I may get a detailed account of the standard pressure charcoal test for calculating the gasoline content of natural gas. This information to include directions as to how to take the sample and make the distillation.—W. D. C.

The Natural Gas Association of America, 904 Oliver Building, Pittsburgh, Pa., and Association of Natural Gasoline Manufacturers, Tulsa, have developed and approved jointly these methods.

The sample is collected in a charcoal adsorption tube which is charged with 150 grams of activated charcoal, 40 minutes activity, which shall be heated for one hour at 150 degrees Centigrade previous to use. All gas measurements are to be made on inlet side of charcoal tube. The gas is to be dried by means of calcium chloride, before metering if a dry or orifice meter is used, and on outlet of meter if a wet meter is used. If an orifice meter is used, proper correction for specific gravity is necessary. All gas volumes are to be corrected to 60 degrees Fahrenheit and 30 inches of mercury without correction for saturation. Rate of flow of gas through charcoal varies with the vapor content of the gas. Rate is cubic feet per hour.

The following rates should be used: When the vapor content is under 100 gallons per million, 20 cubic feet per hour; between 100 and 300 gallons, 15 cubic feet per hour; between 300 and 500 gallons, 10 cubic feet per hour; between 500 and 1,000 gallons, 5 cubic feet per hour; over 1,000 gallons, 2 cubic feet per hour.

The volume of gas passed must be such that there will be recovery of approximately 25 c.c. of fluid on distillation.

The distillation operation is conducted in the following manner:

Pour 150 c.c. of pure glycerin into distillation flask. Use a funnel for the purpose in order to prevent glycerin adhering to the neck of the flask; transfer the charcoal used in the test from the adsorbing tube to the flask. A cork carrying the thermometer is inserted in the neck of the flask, the thermometer bulb being located just below the side outlet of flask; the condenser box is filled with cracked ice and water. The temperature shall be maintained between 32 and 34 degrees Fahrenheit in the condenser box; the beaker or jar in which the condensate receiver is placed is filled with cracked ice and water. A low flame is lighted under the flask. During the first few moments of the distillation the burner is off-set so that the flame impinges on the side of the flask just below the level of the glycerin. This materially assists in preventing foaming of the glycerin; in case the glycerin should foam to the extent of filling the flask and flowing out the side outlet, the test is lost. When foaming occurs, this contingency can be met by playing a flame cautiously around the upper part of the flask. After the danger point from foaming is passed the flame is adjusted to the center of the flask and is so regulated that the distillation consumes about 45 minutes. When the temperature reaches 350 degrees Fahrenheit the flame is cut off and the flask allowed to cool; and, after the flask has cooled enough to permit handling, disconnect from condenser inlet and flush out condenser with 20 c.c. water. The volume of condensate in the receiver is read and noted.

The gallons of fluid per million cubic feet of gas may be computed conveniently according to the following formula:

$$\frac{264.2\ B}{A} = X \text{ gallons of fluid per million.}$$

Where A = Corrected gas volume in cubic feet which has passed through the charcoal; and

B = The volume in cubic centimeters of the condensate recovered,

the result (X) is gallons per million; the volume of liquid is measured at 32 degrees Fahrenheit, and the volume of the gas is measured at 60 degrees Fahrenheit and 30 inches of mercury pressure.

There are 3,785 c.c. in 1 gallon, hence 1 c.c. is 0.0002642 gallon.

WHY DOES CRACKED GASOLINE GO OFF COLOR

We have been asked to answer what we first thought was a very simple question but when we began to apply the proper wording and give a correct answer we found ourselves wanting and we would be very glad indeed if you would give us a good answer so we can explain to the ordinary layman, answer to the following question—Why does cracked gasoline go off color?—L. B. S.

Just what is responsible for the development of the color of petroleum products is not known. Pure hydrocarbons are without color but become colored upon oxidation. This change is especially noticeable when the unsaturated members are present. It is thought by some authorities that these colored substances are true dyes but many facts are lacking to support this suggestion.

We know that the characteristic yellow to brown tint formed when some cracked gasolines are exposed to light, that the sunlight accelerates the oxidation, and that the color advances rapidly when the diolefins are present. The diolefins constitute a group of unsaturated hydrocarbons. There is also the idea that the small quantity of aromatic compounds, which are frequently present in cracked gasolines, constitute the base for the color, because the aromatic carbon compounds are the source of many coloring matters. We know that light is not always necessary for the development of the color, because many experiments have demonstrated that the color will be formed even when the product is kept in the dark.

There appears to be some connection with the development of color and the formation of gum. An appreciable deposition of gum is usually accompanied with a deepening of tint, which we express by the term "going off color." When we stop the formation of gum we also stop the tendency to darken.

The presence of the small quantities of sulphur and nitrogen may have something to do with color. Sulphur and nitrogen are present in many colored bodies and dyestuffs.

The following is from Gurwitch-Moore, Petroleum Technology, page 151:

"It is often stated that the compounds which occasion the color of petroleum oils are to be looked upon as true dyestuffs. This view was taken by Engler who endeavored to support it by the facts that Pawlewski had separated a dark brown substance containing 3.76 per cent of sulphur from Galician ozokerite, and that petroleum oils may be partially or wholly decolorized by nascent hydrogen. Gurwitsch is, however, of the opinion that these facts do not in any way prove the presence of true dyestuffs in petroleum oils, if by dyestuffs are understood, as is generally the case, not merely colored substances, but those which have the property of dyeing animal and vegetable fibers. Such substances are not present in petroleum oils."

CRACKING INCREASES ANTI-KNOCK SUBSTANCES

What is the essential principle used for increasing the antiknock value of gasoline by cracking?—M. R.

It is now a commonly accepted fact that usually a cracked gasoline is a much better motor fuel than that obtained direct from the crude because it is consumed in the motor with less detonation. The explanation for the additional knock rating obtained in the gasoline from the cracking operation, over the straightrun product, is to be found in the fundamental principle of the cracking process. That is, the rearrangement of the structure of the hydrocarbon molecules. The groups of carbon and hydrogen are separated or cracked and then re-formed into groups of a different character.

Some hydrocarbons, especially those of the paraffin group, are known to detonate to an objectionable extent. These bad knockers of the open chain, or saturated group, may be changed to unsaturated, cyclic, and even aromatics by heat treatment, such as we have in the cracking process. The latter substances, especially the aromatics, have antiknock properties.

The character of the charging stock, the kind of cracking, the conditions and skill of the operators have much to do with the final antiknock properties of the cracked gasoline. The length of the heat treating period and high temperature are important considerations. The knock rating of the raw gasoline may be seriously lowered if the treating operation is not properly controlled as to the chemical reagents employed.

The carbon compounds which contribute to the antiknock value of a cracked gasoline include the aromatics, naphthenes, olefines, the cyclic olefines and the diolefines.

BENZOL FROM ACETYLENE

The books on organic chemistry show that it is possible to convert acetylene to benzol, but I can find no detailed description of a commercial process for this. Can you give me any information about it?—L. D. G.

Acetylene may be made by the action of water on calcium carbide and this reaction has formed the basis for the manufacture of ethylene, acetone, aldehyde, alcohol and other carbon compounds. These are of the straight chain series and the change to the closed chain compound benzol may be accomplished by heating three volumes of acetylene at a dull red heat. The three volumes of acetylene form one volume of benzol. We do not believe this reaction is suitable for large scale operation.

The Petroleum Times, September 3, 1927, described a commercial process, abstracted from the Journal of the Society of Chemical Industry for Japan.

This is a method of making benzol from acetylene in which active carbon is the catalytic agent for converting the gas into liquid benzol, thus adding one more to the many important uses being made of activated carbon. The details available regarding the method are not so complete as could be wished, but from the point of view of reactive chemistry, the process appears to be of quite special interest. In the first place it is shown that the most important factor for success is to regulate the rate of speed at which the gas is led over the catalyst. The temperature also plays an important part and, for the best results, should be maintained at 650 to 660 degrees Centigrade. The use of such temperatures show that the action is different to that of adsorption of benzol by active carbon from coal gases, because at such temperatures adsorption does not take place and previously adsorbed substances are driven out of it.

With temperatures greater than the above, there is a separation of carbon, and the production of highly polymerized compounds at the expense of the benzol yield.

If the process is carried out under the prescribed conditions, from 60 to 70 per cent of the acetylene becomes converted into benzol, of which 50 to 60 per cent distills over below 150 degrees Centigrade.

It is considered that, if this discovery proves to be technically successful on a large scale, benzol thus produced will ultimately come into strong competition with benzol produced in coal distillation, as it should be a relatively cheap method of making this important hydrocarbon.

USES FOR PETROLEUM COKE

I wish to obtain as complete a list as possible showing what use is made of petroleum coke in the different industries at this time?—P. L. O.

The greater part of the petroleum coke produced is used as a fuel and it is consumed for this purpose in several forms. These include the lump coke, powdered and briquetted. The powdered coke may be burned alone and is often mixed with powdered coal to increase the calorific value of the fuel. Favorable results have been obtained by briquetting petroleum coke. This operation puts the coke into a convenient form and size for use as a domestic fuel, and reduces the waste because of the tendency of the normal petroleum coke to disintegrate and be reduced to powder. Power plants, cement mills, brick and tile works, and smelters use large quantities of petroleum coke.

In addition to its fuel value in metallurgical processes, petroleum coke is incorporated in the mix, when reducing ores, because of the carbon it contains. Carbon is used in some form to aid in the chemical reaction necessary for the extraction of the metal from many different ores.

Other uses for petroleum coke include, carbon brushes, electrodes, abrasive and polishing purposes in the form of powder, paste and special preparations, insulating material, filtering and as a filter aid.

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

OKLAHOMA (Group 3)—	Feb. 19		Feb. 12		Feb. 5	
50-52 450 endpoint	.06½	.06⅝	.06½	.06⅝	.06½	.06¾
56-58 450 endpoint	.06½	.06¾	.06½	.06¾	.06½	.06¾
58-60 450 endpoint	.06½	.06¾	.06½	.06¾	.06½	.06¾
*56-60 437 endpoint (U. S. Motor)	.0707		.0709		.0702	
*60-62 437 endpoint	.0712		.0745		.0726	
*60-62 400 endpoint	.0743		.0750		.075	
*64-66 375 endpoint	.0808		.0810		†.08	
68-70 360 endpoint	.07¾	.08	.07¾	.08	.08½	
64-66 437 endpoint (blend)	.06½	.06¾	.06½	.06¾	.06¾	

*Weighted average prices February 18, 11 and 4, as reported by representative refiners. Sales to jobbers only. †No sales reported. Prices given are general market.

NORTH TEXAS—						
56-58 450 endpoint	.06¼	.06½	.06¼	.06½	.06½	.06¾
58-60 450 endpoint	.06¼	.06½	.06¼	.06½	.06½	.06¾
58-60 437 endpoint (U. S. Motor)	.06½	.06¾	.06½	.06¾	.06¾	.07
60-62 400 endpoint	.07¼		.07	.07¼	.07½	
64-66 390 endpoint	.07½		.07¼	.07½	.07⅝	.07¾
64-66 375 endpoint	.07¾	.08	.07⅝	.08	.07¾	.08
68-70 360 endpoint	.08	.08¼	.08		.08½	.08¾
64-66 437 endpoint (blend)	.06½		.06½		.06¾	.07
NORTH LOUISIANA—						
58-60 437 endpoint (U. S. Motor)	.07		.07¼	.07½	.07¼	.07½
ARKANSAS—						
58-60 437 endpoint (U. S. Motor)	.07		.07¼		.07¼	
PENNSYLVANIA—						
52-54 Naphtha	.08¼	.08½	.08½	.08¾	.08½	.08¾
54-56 Naphtha	.08¾	.09	.08¾	.09	.09½	.09¾
58-60 Gasoline	.09¼	.09½	.09¼	.09½	.09½	.09¾
60 Gasoline	.09¾	.10	.09¾	.10	.10¼	.10½
62 Gasoline	.10½	.10¾	.10½	.10¾	.10½	.10¾
64 Gasoline	.10½	.10¾	.10½	.10¾	.10¾	.11
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.08	.09	.09	.10	.09¼	.10
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.06½	.06¾	.06½	.06¾	.06½	.06¾
56-58 450 endpoint	.06¼	.06¾	.06½	.06¾	.06⅝	.06¾
58-60 437 endpoint (U. S. Motor)	.06½	.07	.06⅝	.07	.06¾	.07
60-62 400 endpoint	.07¼	.07½	.07¼	.07½	.07¼	.07½
64-66 375 endpoint	.07¾	.08	.08	.08¼	.07⅞	.08
68-70 360 endpoint	.08¼	.08½	.08¼	.08½	.08¼	.08½
64-66 437 endpoint (blend)	.06¼	.06¾	.06⅞	.07⅛	.07	.07⅜
GULF COAST (Export)—						
58-60 (U. S. Motor)	.08½		.08½		.08½	
60-62 400 endpoint	.09½		.09½		.09½	
61-63 390 endpoint	.09¾		.09¾		.09¾	
64-66 375 endpoint	.10		.10		.10	

NATURAL GASOLINE

OKLAHOMA (Group 3)—	Feb. 19		Feb. 12		Feb. 5	
Grade A, 72-79.9, 375 e.p., rec. 90%	.07¾		.07⅜		.07¼	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.07		.06¾		.06½	
Grade B, 76-83.9, 375 e.p., rec. 85%	.06¼	.06½	.05½	.05¾	.05½	
Grade BB, 84-92, 375 e.p., rec. 85%	.06		.05¼		.05	.05⅛
Grade C, 80-90, 375 e.p., rec. 78%	.05¾		.05⅛	.05¼	.04¾	.05
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07¾		.07⅜		.07¼	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.07		.06¾		.06½	
Grade B, 76-83.9, 375 e.p., rec. 85%	.06½		.05½		.05½	.05¾
Grade BB, 84-92, 375 e.p., rec. 85%	.06		.05¼		.05	.05⅛
Grade C, 80-90, 375 e.p., rec. 78%	.05¾		.05¼		.04¾	.05
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.07¼		.06⅞	.07	.07	
Grade BB, 84-92, 375 e.p., rec. 85%	.06		.05½		.05¾	.06
Grade C, 80-92, 375 e.p., rec. 78%	.05¾		.05⅜	.05½	.05¼	.05½
CALIFORNIA—						
75-78, 375-390 endpoint	.07¼	.07¾	.07¾	.08¼	.08	.08½
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07¾		.07⅜		.07¼	.07½
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06¾	.07	.06¾		.06¼	.06½
Grade B, 76-83.9, 375 e.p., rec. 85%	.06¼		.05½	.05¾	.05½	.05⅝
Grade BB, 84-92, 375 e.p., rec. 85%	.05¾	.06	.05¼		.05	.05⅛
Grade C, 80-90, 375 e.p., rec. 78%	.05¾		.05¼		.05	

BURNING OIL

OKLAHOMA (Group 3)—	Feb. 19		Feb. 12		Feb. 5	
41-43 water white Kerosene	.05¼	.05½	.05¼	.05⅜	.05	.05¼
42-44 water white Kerosene	.05¾	.06	.05¾	.06	.05⅞	.06
NORTH LOUISIANA—						
41-43 water white Kerosene	.06	.06¼	.06		.06	
NORTH TEXAS—						
41-43 water white Kerosene	.05⅜	.05½	.05¼	.05½	.05¼	.05½
40-42 water white Kerosene	.05¼	.05½	.05¼		.05¼	
ARKANSAS—						
41-43 water white Kerosene	.06	.06¼	.05¾	.06	.05¾	.06
PENNSYLVANIA—						
43 Kerosene prime white	.06¾	.07	.06¾	.07	.06¾	.07
45 Kerosene water white	.07	.07¼	.07	.07¼	.07	.07¼
46 Kerosene water white	.07½	.07¾	.07½	.07¾	.07½	.07¾
47 Kerosene water white	.07¾	.08	.07¾	.08	.07¾	.08
300 Mineral Seal	.07	.07¼	.07	.07¼	.07	.07¼
CALIFORNIA—						
38-40 water white Kero. (high-burning test)	.06	.06½	.06	.06½	.06	.06½
Engine distillate, 43-44, 445 endpoint	.06½	.07	.07½	.08	.07½	.08
Engine distillate, 42-44, 480 endpoint	.06	.06½	.07	.07½	.07	.07½
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white Kerosene	.05⅜	.05½	.05¼	.05⅜	.05⅛	.05¼
42-44 water white Kerosene	.05¾	.06	.05¾	.06	.05½	.05¾
GULF COAST (Export)—						
41-43 prime white	.06¾		.06¾			
41-43 water white	.07¾		.07¾			

FUEL OILS

OKLAHOMA (Group 3)—	Feb. 19		Feb. 12		Feb. 5	
Below 18 Fuel Oil, per bbl.	.50	.55	.50	.55	.50	.55
18-22 Fuel Oil, per bbl.	.55	.57½	.55	.57½	.55	.57½
22-26 Fuel Oil, per bbl.	.62½	.65	.62½	.65	.62½	.65
24-26 Fuel Oil, per bbl.	.65	.67½	.65	.67½	.65	.67½
26-30 Fuel Oil, per bbl.	.75	.80	.75	.80	.75	.80
28-30 Fuel Oil, per bbl. (industrial)	.87½	.90	.85	.87½	.85	.87½
28-30 Fuel Oil, per bbl. (zero cold test)	1.05	1.10	1.00	1.05	1.00	1.05
32-36 Gas Oil (industrial)	.02¾	.03⅛	.02¾	.03	.02¾	.03
32-36 Gas Oil (straw color)	.03	.03¼	.02⅞	.03⅛	.02⅞	.03¼
36-38 Distillate	.03⅞	.04⅛	.03⅝	.03¾	.03⅝	.03⅞
38-40 Straw Distillate	.04	.04¼	.03¾	.04⅛	.03¾	.04¼
NORTH TEXAS—						
Below 20 Fuel Oil	.60	.62½	.60	.62½	.60	.62½
24-26 Fuel Oil, per bbl.	.65	.67½	.62½	.67½	.62½	.67½
32-36 Gas Oil (straw)	.02¾	.03⅛	.02¾	.03	.02¾	.03
38-40 Straw Distillate	.03⅞	.04⅛	.03¾	.04	.03¾	.04
NORTH LOUISIANA—						
18-20 Fuel Oil, per bbl.	.70	.75	.70	.80	.75	.80
32-36 Gas Oil	.03½		.03½		.03¼	
ARKANSAS—						
33-36 Distillate	.03½	.04	.03¼	.03½	.03¼	.03½
32-36 Gas Oil (straw)	.03¼	.03½	.03¼		.03¼	
16-22 Refinery Fuel Oil, per bbl.	.70	.75	.70	.75	.70	.75
GULF COAST (South Texas)—						
Gas Oil	.04	.04¼	.04	.04¼	.04¼	.04½
Bunker C Fuel (cargo lots), per bbl.	.65	.70	.65	.70	.80	.90
Bunker C Fuel (small lots)	.85	.90	.85	.90		
PENNSYLVANIA—						
30-34 Fuel Oil	.04⅝	.04½	.04½	.04⅝	.04½	.04⅝
36-40 Fuel Oil	.04⅝	.04¾	.04⅝	.04¾	.04⅝	.04¾
CALIFORNIA—						
33-36 Distillate	.03¾	.04	.03¾	.04	.03¾	.04
27-32 Distillate	.03	.03½	.03	.03½	.03	.03½
15-20 Fuel Oil, Bunker (at tide water)	.70	.85	.70	.85	.75	.85
15-20 Fuel Oil (cargo lots), per bbl.	.70	.85	.70	.85	.70	.85
27 plus Diesel, per bbl.	.95	1.05	.95	1.05	.95	1.05
CHICAGO DISTRICT (Based on Group 3)—						
22-26 Fuel Oil, Group 3, bbl.	.65	.67½	.62½	.67½	.62½	.67½
18-22 (Group 3), per bbl.	.55	.57½	.55	.57½	.55	.57½
16-20 Smackover, per bbl.	.87½	.90	.87½	.90	.87½	.90
28-30 Fuel Oil (zero)	1.10	1.15	1.00	1.10	1.00	1.10
32-36 Gas Oil, zero	.03¼	.03½	.03⅛	.03⅜	.03⅛	.03⅜
32-36 Gas Oil (industrial)	.02⅞	.03⅛	.02⅞		.02⅞	
36-38 Distillate	.04	.04⅜	.03¾	.03⅞	.03¾	.03⅞
38-40 Straw Distillate	.04¼	.04½	.03¾	.04	.03¾	.04

LUBRICATING OIL AND WAX

OKLAHOMA (Group 3)—	Feb. 19		Feb. 12		Feb. 5	
100 vis., 2 color, 20-25 cold test	.06	.06½	.06	.06½	.06	.06½
100 vis., 3 color, 20-25 cold test	.05¼	.05½	.05¼	.05½	.05¼	.05½
150 vis., 3 color, 20-25 cold test	.07¼	.07½	.07¼	.07½	.07¼	.07½
150 vis., 4 color, 20-25 cold test	.07	.07¼	.07	.07¼	.07	.07¼
180 vis., 3 color, 23-28 cold test	.08¾	.09	.08¾	.09	.08¾	.09
180 vis., 4 color, 23-28 cold test	.08¼	.08¾	.08¼	.08¾	.08¼	.08¾
180 vis., 5 color, 23-28 cold test	.08¼	.08½	.08¼	.08½	.08¼	.08½
200 vis., 3 color, 23-28 cold test	.09¼	.09½	.09¼	.09½	.09¼	.09½
200 vis., 4 color, 23-28 cold test	.09	.09¼	.09	.09¼	.09	.09¼
200 vis., 5 color, 23-28 cold test	.08½	.08¾	.08½	.08¾	.08½	.08¾
240 vis., 3 color, 25-30 cold test	.12¼	.12½	.12¼	.12½	.12¼	.12½
240 vis., 4 color, 25-30 cold test	.11¾	.12	.11¾	.12	.11¾	.12
240 vis., 5 color, 25-30 cold test	.10¾	.11	.10¾	.11	.10¾	.11
280 vis., 3 color, 25-30 cold test	.13¾	.14	.13¾	.14	.13¾	.14
280 vis., 4 color, 25-30 cold test	.12¾	.13	.12¾	.13	.12¾	.13
280 vis., 5 color, 25-30 cold test	.11¾	.12	.11¾	.12	.11¾	.12
Cylinder Stocks:						
600, steam refined, light green	.09	.10	.09	.10	.09	.12
600, steam refined, dark green	.08		.08		.08	.10
150-200 vis. D color Bright Stock	.33	.35	.33	.35	.31	.35
150-160 vis. D color Bright Stock	.30	.32	.30	.32	.29	.32
150-160 vis. E color Bright Stock	.28	.30				
Waxes:						
124-126 White Crude Scale Wax	.03⅞	.04¼	.03⅞	.04⅛	.04½	.04⅝
PENNSYLVANIA—						
34 Neutral	.07½	.07⅝	.07½	.07¾	.07½	.07⅝
34 Sundebloom	.07⅜	.08	.07⅜	.08	.07⅜	.08
36 Miners' Neutral	.07¼	.07½	.07¼	.07½	.07¼	.07½
150, 3 color	.21½	.22	.21½	.22	.21½	.22
180, 3 color	.25½	.26	.25½	.26	.25½	.26
200, 3 color	.28	.28½	.28	.28½	.28	.28½
220, 3 color	.30	.30½	.30	.30½	.30	.30½
600, steam refined	.22	.22½	.22	.22½	.22½	.23
635, steam refined	.27½	.28	.27½	.28	.27½	.28
650, steam refined	.27½	.28	.27½	.28	.29½	.30
600, Pennsylvania flash	.31½	.32	.31½	.32	.31½	.32
630, Pennsylvania flash	.36½	.37	.36½	.37	.36½	.37
600, E filtered	.25½	.26	.25½	.26	.26½	.27
600, D filtered	.29½	.30	.29½	.30	.29½	.30
550, E filtered	.15½	.16	.15½	.16	.15½	.16
550, D filtered	.21½	.22	.21½	.22	.21½	.22
Pennsylvania Bright Stock	.39	.40	.39	.40	.39	.40
†122-124 White Crude Scale Wax	.04¼		.04¼		.04⅜	
†124-126 White Crude Scale Wax	.04¾		.04¾		.05	

†At New York.

GULF COAST (South Texas)—						
No. 2 color, 100 vis., pale oil	.06½	.07	.06½	.07	.06½	.07
No. 3 color, 200 vis., pale oil	.09	.10	.09		.09	
No. 3 color, 300 vis., pale oil	.10½	.11	.10½	.11	.10½	.11
No. 3½ color, 500 vis., pale oil	.11½	.12½	.12		.12	
No. 4 color, 750 vis., pale oil	.14	.15	.15	.15½	.15	.15½
No. 5 to 6 color, 200 vis., red oil	.07½	.08½	.08¼	.08½	.08¼	.08½
No. 5 to 6 color, 300 vis., red oil	.08½	.09½	.09¼	.09¼	.09¼	.09½
No. 5 to 6 color, 500 vis., red oil	.09½	.10½	.10¼	.10½	.10¼	.10½
No. 5 to 6 color, 750 vis., red oil	.13	.14	.13¼	.13½	.13¼	.13½

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

No. 2½ color, 200 vis., pale filtered	.11½		.11½		.11½	
No. 2½ color, 300 vis., pale filtered	.13	.13¼	.13	.13¼	.13	.13¼
No. 2½ color, 500 vis., pale filtered	.15½	.16	.15½	.16	.15½	.16
No. 2½-3 color, 750 vis., pale filtered	.18	.20	.18	.20	.18	.20
CALIFORNIA—						
2½-3 color	.10¼	.10½	.10¼	.10½	.10¼	.10½
130 vis., 2½-3 color	.11½	.11¾	.11½	.11¾	.11½	.11¾
200 vis., 2½-3 color	.13	.13¼	.13	.13¼	.13	.13¼
300 vis., 3-3½ color	.13½	.13¾	.13½	.13¾	.13½	.13¾
350 vis., 3½-4 color	.15	.15½	.15	.15½	.15	.15½
400 vis., 3½-4 color						
Red Neutral:						
200 vis., 4½-5 color	.11	.11¼	.11	.11¼	.11	.11¼
300 vis., 5-6 color	.12	.12¼	.12	.12¼	.12	.12¼
400 vis., 5-6 color	.13¼	.14	.13¼	.14	.13¼	.14
500 vis., 4½-5 color	.15¼	.15½	.15¼	.15½	.15¼	.15½
550 vis., 5-6½ color	.15	.15¼	.15	.15¼	.15	.15¼
600 vis., 6½ plus color	.16	.16¼	.16	.16¼	.16	.16¼

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Feb. 19	Feb. 12	Feb. 5
‡Gasoline, U. S. Motor, 58-60, 437	.10	.10	.10
Kerosene, water white, 41-43	.08½	.08½	.08½
*Fuel Oil, Bunker "C," 14-16, per bbl.	1.05	1.05	1.05
†Fuel Oil, Diesel, 28-30, per bbl.	2.00	2.00	2.00
Gas Oil, 32-36 gravity	.05¼	.05¼	.05¼
25 pale Paraffin Oil	.11¾	.11¾	.11¾
28 pale Paraffin Oil	.07½	.07½•	.07½
28 red Paraffin Oil	.11½	.11½	.11½
250 red Paraffin Oil	.11	.11	.11
225 red Paraffin Oil	.09½	.09½	.09½
200 red Paraffin Oil	.09	.09	.09
Refined Wax:			
120-122 a.m.p., per lb.	.05⅜	.05⅜	.05⅜
125-127 a.m.p., per lb.	.05⅝	.05⅝	.05⅝
130-132 a.m.p., per lb.	.06⅜	.06⅜	.06⅜
133-135 a.m.p., per lb.	.07⅛	.07⅛	.07⅛
135-137 a.m.p., per lb.	.07⅝	.07⅝	.07⅝
Petrolatum in barrels, carloads lots, per lb.:			
Dark green	.02	.02	.02
Amber	.03½	.03½	.03½
Extra amber	.03¾	.03¾	.03¾
Cream	.06½	.06½	.06½
Lily white	.07½	.07½	.07½
Snow white	.08½	.08½	.08½

*Lighterage, 5.0c a barrel extra. †Lighterage, 6.5c a barrel extra. ‡Price of 10 cents became effective February 1. Price incorrectly published in February 14 and 7 issues.

NEW YORK (BAYONNE) EXPORT PRICES

	Feb. 19	Feb. 12	Feb. 5
Gasoline, U. S. Motor, 58-60 437, in cases	.2640	.2640	.2640
Kerosene, standard white, in cases	.1765	.1765	.1765
Kerosene, water white, in cases	.1890	.1890	.1890
600, steam refined cylinder stocks, in bbls.	.30½ .31	.30½ .31	.30½ .31
635, steam refined	.32 .33	.32 .33	.32 .33
650, steam refined	.36 .37	.36 .37	.36 .37
600, Pennsylvania flash	.38 .39	.38 .39	.38 .39
630, Pennsylvania flash	.43 .44	.43 .44	.43 .44
900, Warren E	.34 .35	.34 .35	.34 .35
600, Oil City E	.33	.33	.33
Light 140-150 Bright Stocks	.46	.46	.46
Dark 140-150 Bright Stocks	.45	.45	.45

LOS ANGELES EXPORT PRICES

	Feb. 19	Feb. 12	Feb. 5
Kerosene, water white	.05½ .06	.05½ .06	.05½ .06
U. S. Motor Gasoline, 53-55, 437 e.p.	.07¼ .07¾	.07½ .08	.07½ .08

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Corsicana heavy (January 11)	.80
Other fields	See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE
Carson and Hutchinson

Below 32 gravity	$ .72
32-32.9	.78
33-33.9	.81
34-34.9	.84
35-35.9	.87
36-36.9	.90
37-37.9	.93
38-38.9	.96
39-39.9	.99
40-40.9	1.02
41-41.9	1.05
42-42.9	1.08
43-43.9	1.11
44 and above	1.14

Wheeler County

Below 30 gravity	$ .70
30-30.9	.76
31-31.9	.82
32-32.9	.88
33-33.9	.91
34-34.9	.94
35-35.9	.97
36-36.9	1.00
37-37.9	1.03
38-38.9	1.06
39-39.9	1.09
40-40.9	1.12
41-41.9	1.15
42-42.9	1.18
43 and above	1.21
Gray County	1.24
	See gravity table

Humble Oil & Refining Co., and Magnolia Petroleum Co., January 24, 1929.

WEST TEXAS

Iatan*	Same as North Texas
Crane-Upton-Crockett, Pecos, Winkler and Glasscock (July 26)‡	$ .65
Chalk†	.65
Mitchell†	.65

*Includes Howard County and Westbrook Fields. Mariand Refining Co. pays $1.05 for Howard County crude, effective May 21.
†Magnolia Petroleum Co., January 26, 1929.
‡Posted by Humble Oil & Refining Co. Magnolia Petroleum Co., and Gulf Pipe Line Co.

ARKANSAS-NORTH LOUISIANA

Cotton Valley (Below 36 gravity April 11)	$ .75
Bellevue	1.20
Urania (Oct. 16, 1928)	.90
East El Dorado (March 16, 1927)	1.00
Other fields	See gravity table

*Cotton Valley crude above 36 gravity takes same gravity price schedule as shown for North Louisiana and Arkansas crude in Mid-Continent gravity price table.

Note—Cotton Valley and Bellevue posted by Standard Oil Co. of Louisiana, Louisiana Oil Refining Co., Gulf Refining Co., and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co., Gulf Refining Co.

GULF COAST
(Goose Creek, Hull, Liberty, West Columbia, Orange Boling, Sour Lake, Humble Sugarland, Raccoon Bend, High Island, Pierce Junction and Spindletop.)

Grade A (March 14)*	$1.20
Grade B	See gravity table
Jennings, La. (March 14)†	$1.05

(Continued on Page 142)

CRUDE OIL GRAVITY TABLE

Gravity—	1 Okla., Kans. N. C. Tex.	2 No. La. and Arkansas	3 Smackover, Ark.	4 Stephens, Ark.	5 Gray County (Texas Panhandle)	6 Salt Creek, Wyo.	7 Grade B & Light Crude (G. Coast)	8 Somerset (South Central Texas)
24 and above	....	....	.90	....	....	....	....	....
Below 24	....	....	.75	....	....	....	....	....
Below 25	.60	....	....	....	....	....	1.05	....
25 to 25.9	.66	....	....	....	....	....	1.07	....
Below 26	....	....	....	....	....	....	....	....
26 to 26.9	.72	....	....	....	....	....	1.09	....
27 to 27.9	.78	....	....	....	....	....	1.11	....
Below 28	....	.78	....	.70	.69	....	....	....
28 to 28.9	.84	.84	....	.74	.69	....	1.13	....
29 to 29.9	.90	.90	....	.78	....	.90	1.15	....
30 to 30.9	.96	.96	....	.82	.81	.96	1.17	....
31 to 31.9	1.02	1.02	....	.86	.87	1.02	1.19	....
32 to 32.9	1.08	1.08	....	.90	.93	1.08	1.21	1.05
33 to 33.9	1.11	1.13	....	....	.96	1.11	1.23	1.07
34 to 34.9	1.14	1.14	....	....	.99	1.14	1.25	1.09
35 to 35.9	1.17	1.17	....	....	1.02	1.17	1.27	1.11
36 to 36.9	1.20	1.20	....	....	1.05	1.20	....	1.13
37 to 37.9	1.23	1.23	....	....	1.08	1.23	....	1.15
38 to 38.9	1.26	1.26	....	....	1.11	....	....	1.17
39 to 39.9	1.29	1.29	....	....	1.14	....	....	....
40 to 40.9	1.32	1.32	....	....	1.17	....	....	....
41 to 41.9	1.35	1.35	....	....	1.20	....	....	....
42 to 42.9	1.38	1.38	....	....	1.23	....	....	....
43 to 43.9	1.41	1.41	....	....	1.26	....	....	....
44 and above	1.44	1.44	....	....	1.29	....	....	....

Column 1, Note—Magnolia Petroleum Co. posted schedule January 24, 1929, making price below 26 gravity 60 cents per barrel, 26-26.9 gravity 66 cents, 27-27.9 gravity 70 cents, 28-28.9 gravity 75 cents, 29-29.9 gravity 80 cents, 30-30.9 gravity 90 cents and 31-31.9 gravity $1, with balance of the price schedule as shown.

Oklahoma—Humble Oil & Refining and Carter Oil Co. January 24, Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., The Texas Company, January 25.

North Central Texas—Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs (Southwest Texas, Iatan and Panola, Iatan posted a flat price of 93 cents by Magnolia on January 14, 1928), Currie, Nocona and Moran. Prairie, Sinclair and Gulf, The Texas Company, January 25, Humble Oil & Refining Co., January 24.

Kansas—Prairie, Sinclair and The Texas Company, January 25; Carter, January 24.

Column 2—Arkansas and North Louisiana—[Caddo, Bull Bayou, Crichton, DeSoto, Haynesville, Homer, and El Dorado only], Standard Oil Co. of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co., Magnolia Petroleum Co., schedule effective January 26 applies to Pine Island, Haynesville, Bull Bayou, Louisiana, and ElDorado, Ark., light crude. The Texas Company January 24 posted prices below 28 gravity at 6 cents differential per degree with minimum of 60 cents for all below 24 gravity.

Column 3—February 6, Louisiana Oil Refining Corp.; February 7, Standard Oil Co. of Louisiana, The Texas Company, Gulf Refining Co., Magnolia Petroleum Co., and on February 10, Atlantic Oil Producing Co.

Column 4—Atlantic Oil Producing Co., Louisiana Oil Refining Corp., January 28.

Column 5—Humble Oil & Refining Co., Magnolia Petroleum Co., January 24, 1929.

Column 6—Midwest Refining Co., January 25, 1929. All crude over 37 gravity $1.23 per barrel.

Column 7—Humble Oil & Refining Co. and other major buyers January 26 (schedule ends 35 and above), with exception of Magnolia Petroleum Co., which stops at 31 degrees gravity. Sun Pipe Line Co. and The Texas Company posted 2 cents differential for each degree above 35 gravity and $1.37 for 40 gravity and above.

Column 8—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co.-Union Oil Co. (Effective January 18, 1929)

Gravity—	1 Salt Lake, Potrero, Newport, Long Beach, Signal Hill, Seal Beach, Los Angeles, Fullerton, Richfield, Torrance, Olinda-Brea, Alamitos Heights, Signal Hill, Seal Beach, Huntington Beach, Inglewood, Rosecrans, Dominguez, Watsonville	2 Whittier, La Habra, Coyote Hills	3 Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills	4 Montebello	5 Santa Fe Springs	6 Santa Maria, Coalinga	7 Wheeler Ridge, Ventucopa	8 Orcutt	9 Elwood, Ventura, Rincon	10 Kern River†, Newhall-McKittrick, Mount Poso, Round Mountain
14 to 14.9	.70	.70	.50	.70	....	.50	.50	.65	.70	.50
15 to 15.9	.70	.70	.50	.70	....	.50	.50	.65	.70	.50
16 to 16.9	.70	.70	.50	.70	....	.50	.50	.65	.70	.50
17 to 17.9	.70	.70	.50	.70	....	.50	.50	.65	.70	.50
18 to 18.9	.75	.75	.56	.70	....	.56	.56	.70	.75	.50
19 to 19.9	.80	.80	.62	.75	....	.62	.62	.70	.80	.50
20 to 20.9	.85	.84	.68	.80	....	.68	.68	.70	.85	....
21 to 21.9	.89	.88	.74	.85	.85	.74	.74	.86	.86	....
22 to 22.9	.93	.91	.80	.90	.92	.80	.80	.87	.87	....
23 to 23.9	.97	.94	.85	.95	.96	.85	.85	.90	.90	....
24 to 24.9	1.01	.97	.90	.95	.98	.88	.88	.93	.94	....
25 to 25.9	1.05	1.00	.95	1.01	1.01	.91	.91	.95	.98	....
26 to 26.9	1.09	1.04	1.00	1.04	1.04	.94	.94	.97	1.02	....
27 to 27.9	1.13	1.08	1.05	1.07	1.07	.98	.97	....	1.06	....
28 to 28.9	1.17	1.12	1.10	1.10	1.10	1.02	....	....	1.10	....
29 to 29.9	1.21	1.16	1.16	1.13	1.15	1.06	....	....	1.14	....
30 to 30.9	1.25	1.20	1.22	1.16	1.20	1.10	....	....	1.18	....
31 to 31.9	1.30	....	1.28	....	1.25	1.14	....	....	1.23	....
32 to 32.9	1.35	....	1.34	....	1.30	1.18	....	....	1.28	....
33 to 33.9	1.41	....	1.40	....	1.35	1.22	....	....	....	....
34 to 34.9	1.47	....	1.46	....	1.40	1.26	....	....	....	....
35 to 35.9	1.53	....	....	....	1.45	1.30	....	....	....	....
36 to 36.9	1.59	....	....	....	1.50	....	....	....	....	....
37 to 37.9	1.65	....	....	....	1.55	....	....	....	....	....
38 to 38.9	1.71	....	....	....	1.60	....	....	....	....	....
39 to 39.9	1.77	....	....	....	1.65	....	....	....	....	....
40 to 40.9	1.83	....	....	....	....	....	....	....	....	....
41 to 41.9	1.89	....	....	....	....	....	....	....	....	....
42 to 42.9	1.95	....	....	....	....	....	....	....	....	....

*Column 1—Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity. Dominguez and Athens-Rosecrans, 24 to 42.9 gravity.

Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

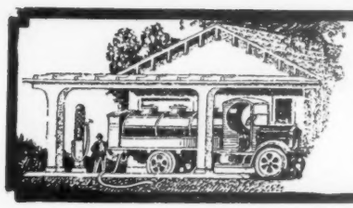
Column 3—Kern River, Newhall and McKittrick, 11 to 19.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 11 to 33.9 gravity; Lost Hills, 11 to 34.9 gravity; oil below 14 gravity posted at 45 cents.

Column 6—Oil below 14 gravity posted at 45 cents.

Columns 8 and 9 posted by Union Oil Co. only.

†On October 2, 1928, Standard Oil Co. of California discontinued contracting for purchase of Kern River crude and on October 20 established following prices on grades below 14 gravity; 11 to 11.9 degrees at 45 cents.

On December 1, 1928, the Union Oil Co. adopted the above schedule of the Standard on Kern River crude and in addition posted Midway-Sunset, Elk Hills, Buena Vista, Lost Hills and Coalinga crude as follows: 11-11.9 gravity, 45 cents; 12 to 12.9 gravity, 55 cents; and 13 to 13.9 gravity at 65 cents. All grades of Elwood crude were cut 7 cents.



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Feb. 19.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
†Chicago dist.	14.0	15.0	...	12.0
Decatur, Ill.	14.2	15.2	...	12.1
E. St. Louis	13.4	14.4	...	11.2
Joliet	14.4	15.4	...	12.3
Peoria	14.2	14.0	...	12.1
Quincy	14.2	15.2	...	11.9
Davenport, Ia.	17.5	18.5	3.0	12.3
Des Moines	17.5	18.5	3.0	12.3
Keokuk	17.5	18.5	3.0	12.3
Sioux City	17.1	18.1	3.0	11.9
Duluth, Minn.	17.5	18.5	2.0	12.9
Mankato	17.1	18.1	2.0	12.7
Minneapolis	17.2	18.2	2.0	12.9
La Crosse, Wis.	17.2	18.2	2.0	13.0
Milwaukee	16.1	17.1	2.0	11.9
Madison	16.3	17.3	2.0	12.1
Detroit, Mich.	17.8	18.8	3.0	13.7
Grand Rapids	17.7	18.7	3.0	13.6
Saginaw	17.9	18.9	3.0	13.8
Evansville, Ind.	17.0	18.0	3.0	13.0
Fort Wayne	17.4	18.4	3.0	13.4
Indianapolis	17.2	18.2	3.0	13.2
South Bend	17.4	18.4	3.0	13.4
Fargo, N. D.	18.9	19.9	2.0	14.9
Huron, S. D.	19.3	20.3	4.0	13.7
Sioux Falls	18.1	19.1	4.0	13.4
K. C., Mo.*	16.9	17.9	3.0	10 6
Springfield*	16.8	17.8	3.0	11.5
St. Louis*	15.9	16.9	2.5	11.3
St. Joseph	16.5	17.5	3.0	11.2
Wichita, Kans.	14.8	15.8	2.0	10.8
Bartlesville, Ok.	15.5	16.5	3.0	10.5

*State tax 2 cents; remainder city tax.
†Effective February 20, discounts on Q.D.A. in Chicago district 2 cents off service station price on purchases of 500 gallons or more per month and 4 cents on purchases of 1,000 gallons or more per month.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	14.7	11 9
V. M. & P. naphtha	16.2	12.9
Cleaner's naphtha	18.0	13 9
Stanisol	19.0	14 4

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting. Effective January 5.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	$ .0
100 to 799 gallons	8.0
800 or more gallons	7.5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

The following quantity discounts from the service station price are allowed on monthly sales of gasoline: 2,000 gallons or less, 2 cents; more than 2,000 and less than 6,000 gallons, 2½ cents; more than 6,000 gallons, 3 cents. Discounts are allowed each month, and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

The Atlantic Refining Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Pittsburgh, Pa.	15.0	*20.0	...	14.0
Philadelphia	15.0	*20.0	...	14.0
Scranton	15.0	*20.0	...	14.0
Allentown	15.0	*20.0	...	14.0
Altoona	15.0	*20.0	...	14.0
Erie	15.0	19.0	...	14.0
Dover, Del.	18.0	20.0	3.0	14.0
Wilmington	18.0	20.0	3.0	14.0
Springf'd, Mass.	18.0	20.0	2.0	15.0
Worcester	18.0	20.0	2.0	15.0
Boston	18.0	20.0	2.0	15.0
Providence, R.I.	18.0	20.0	2.0	15.0
Hartford, Conn.	18.0	20.0	2.0	14.0
New Haven	18.0	20.0	2.0	15.0

*Includes tax of 3.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the state.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
N. Orleans, La*	16.5	19.5	5.0	16.0
Baton Rouge	15.0	18.0	4.0	14.5
Alexandria	16.0	19.0	4.0	16.0
LaFayette	16.0	19.0	4.0	14.0
Lake Charles	16.5	19.5	4.0	16.0
Shreveport	16.0	19.0	4.0	15.0
Knoxv'le, Tenn.	18.0	22.0	3.0	16.0
Memphis	16.0	20.0	3.0	12.5
Chattanooga	17.5	21.5	3.0	16.0
Nashville	17.0	21.0	3.0	16.0
Bristol	18.0	22.0	3.0	14.0
Lit. Rock, Ark.	18.0	21.0	3.0	13.0

*Tax of 5 cents includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax and 1-cent parish tax.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Atlanta, Ga.	21.0	23.0	4.0	16.5
Augusta	21.0	23.0	4.0	15.5
Macon	21.0	22 0	4 0	16.5
Savannah	20.0	22 0	4.0	15.5
Birm'ham, Ala.	18.0	20.0	4.0	13.0
Mobile	21.0	23.0	4.0	15.0
Montgomery	22.0	24.0	4.0	16.5
Clarks'le, Miss.	21.0	23.0	5.0	13.0
Jackson	20.0	22 0	5 0	13 0
Natchez	20.5	22 5	5 0	14.0
Gulfport	22.5	24.5	5.0	14.0
Vicksburg	20.5	22.5	5.0	14.0
Jack'ville, Fla.	22.0	24 0	5 0	14.5
Miami	23.0	25.0	5.0	15.5
Pensacola	23 0	25 0	5 0	14 5
Tampa	22 0	24 0	5.0	14 5
Lexington, Ky.	20 0	22 0	5.0	15.5
Covington	20.0	21.0	5.0	15.5
Louisville	20.0	22.0	5.0	15.0
Ashland	21.0	23.0	5.0	15.5
Catlettsburg	21.0	23.0	5.0	15.5

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. Pensacola and Mobile taxes include 1-cent city levy. Gulf port tax includes privilege tax of 2 cents in addition to state tax.

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
San Francisco	15.0	19.0	3.0	15.5
Los Angeles	14.5	18.5	3.0	15.5
Reno, Nev.	22.0	26.0	4.0	19.0
Portland, Ore.	15.5	19.5	3.0	16.5
Seattle, Wash.	14.5	18.5	2.0	16.5
Tacoma	14.5	18.5	2.0	16.5
Spokane	18.5	22.5	2.0	20.5
Phoenix, Ariz.	18.0	22.0	4.0	20.5

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Albany, N. Y.	16.0	18.0	...	15.0
New York*	16.0	18.0	...	15.0
Buffalo	16.0	18.0	...	14.0
Rochester	16.0	18.0	...	14.0
Syracuse	16.0	18.0	...	15.0
Boston, Mass.	18.0	20.0	2.0	15.0
Augusta, Me.	20.0	22.0	4.0	15.0
Manch'r'r, N.H.	20.0	22.0	4.0	15.0
Burlington, Vt.	19.0	20.0	4.0	15.0

*Prices in steel barrels.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Omaha	16.25	18.25	2.0	12.25
McCook	17.75	19.75	2.0	13.75
Norfolk	16.75	18.75	2.0	12.75
N. Platte	17.75	19.75	2.0	13.50
Scottsbluff	17.75	19.75	2.0	13.25

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Denver, Colo.	16.0	18.0	3.0	14.5
Pueblo	17.0	20.0	3.0	14.5
Grand Junction	21.5	24.5	3.0	18.0
Casper, Wyo.	18.0	21.0	3.0	13.0
Cheyenne	19.0	22.0	3.0	14.5
Butte, Mont.	22.5	25.5	3.0	19.0
Helena	22.5	25.5	3.0	19.0
Salt Lake, Utah	21.0	24.0	3.5	17.0
Albu'que, N. M.	22.0	25.0	6.0	17.0
Boise, Idaho	23.5	26.5	4.0	19.0
Twin Falls	23.5	26.5	4.0	19.0

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Atlantic City	16.0	20.0	3.0	13.0
Newark, N. J.	16.0	20.0	2.0	13.0
Annapolis, Md.	18.0	22.0	4.0	13.0
Baltimore	18.0	22.0	4.0	13.0
Cumberland	18.0	22.0	4.0	13.0
Washington	16.0	20.0	3.0	13.0
Danville, Va.	19.0	23.0	5.0	13.0
Norfolk	19.0	23.0	5.0	13.0
Petersburg	19.0	23.0	5.0	13.0
Roanoke	19.0	23.0	5.0	13.0
Richmond	19.0	23.0	5.0	13.0
Ch'rist'n, W. Va.	18.0	22.0	4.0	13.0
Keyser	18.0	22.0	4.0	13.0
Parkersburg	18.0	22.0	4.0	13.0
Wheeling	18.0	22.0	4.0	13.0
Charlotte, N. C.	18.0	22.0	4.0	13.0
Hickory	18.0	22.0	4.0	13.0
Mt. Airy	18.0	22.0	4.0	13.0
Salisbury	18.0	22.0	4.0	13.0
Ch'leston, S. C.	19.0	23.0	5.0	13.0
Columbia	19.0	23.0	5.0	13.0

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Dallas, Tex.	16.0	20.0	2.0	12.0
Fort Worth	13.9	16.0	2.0	12.0
Houston	16.0	20.0	2.0	13.0
San Antonio	13.0	17.0	2.0	11.0
El Paso	17.0	20.0	2.0	16.0
Texarkana	16.0	19.0	2.0	13.0
Muskogee, Ok.*	1.40	15.0	3.0	12.0
Okla. City*	14.0	18.0	3.0	12.0
Tulsa*	17.0	19.0	3.0	10.0
Ft. Smith, Ark.	16.0	19.0	5.0	13.0
Little Rock	18.0	21.0	5.0	13.0

*Gasoline tank wagon price to dealers 2 cents under posted tank wagon.

OHIO

Standard Oil Co. (Ohio)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
All Ohio points	17 0	18.0	3.0	12.0

TANK WAGON CHANGES

February 5—Magnolia Petroleum Co. reduced the gasoline tank wagon and station prices 1 cent in Muskogee, Okla., to 14 cents and 15 cents.

February 14—Standard Oil Co. of Kentucky reduced gasoline tank wagon and service station prices 2 cents at Birmingham, Ala.

February 15—Standard Oil Co. of California reduced gasoline tank wagon and service station prices 2 cents at all west coast points.

February 20—Standard Oil Co. of Indiana made changes in its Q.D.A. in Chicago territory.

CRUDE PRICE CHANGES

February 15—Joseph Seep Purchasing Agency reduced Somerset, Ky., crude 15 cents to $1.60.

February 16—Stoll Oil Refining Co. reduced crude in their Oil City, Ky., lines 15 cents per barrel to $1.60.

GASOLINE TAX FIGHT OVER SHARING REVENUE

CHICAGO, Feb. 16.—A strong fight is being made against the administration measure placing a 3-cent tax on gasoline in this State. Those leading the fight are the city of Chicago, through its board of aldermen, Cook County, whose commissioners are taking an active part, and the motor clubs. The fight is not against the plan to have a tax on gasoline but against the distribution of the proceeds from the tax. The claim of those who are opposing the proposed measure is that the populous centers will pay most of the tax and are entitled to a larger share of the proceeds than allowed them by the bill presented to the legislature. This State will have a gasoline tax, but its enactment may be deferred if the opposition prove strong enough to force the desired changes.

CANNOT SET OIL PRICE

WASHINGTON, D. C., Feb. 18.—The Texas Company won in the District of Columbia Supreme Court its contention that Secretary West of the Interior Department exceeded his power when he sought to compel the Cody Petroleum Co. of Wyoming, a government lessee of oil fields, to charge the company 85 cents per barrel for oil sold to The Texas Company under a contract made in April, 1928, for crude oil at 53 cents a barrel.

The court held that the right to fix the price of royalty oil did not give the secretary the right to fix prices for the producer's own oil.

Secretary West had refused to approve the contract of the plaintiff with the Cody company on account of the price named and had threatened, it was stated, to close down the wells.

EGYPTIAN OIL EXPLORATION

It is reported that the Asiatic Petroleum Co. has made an arrangement with the Egyptian government by which the company will shortly employ seven experts to conduct a three months' research for petroleum on the Red Sea Coast (Abou Shai'r district).

CRUDE OIL PRICES

(Continued from Page 141)

Saratoga, Batson, Daytona, (March 14, 1927)‡	1.70
Markham (March 14)§	1.60
High Island (December 14)¶	1.60

*Humble Oil & Refining Co. and other major buyers. †Gulf Pipe Line Co. ‡Sun Pipe Line Co. §The Texas Company. ¶Posted by Gulf Pipe Line Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.
(Effective January 25, 1929)

Rock Creek, Wyo.	$1.15
Salt Creek	See gravity table
Big Muddy	1.75
Grass Creek, heavy (July 27, 1928)	.85
Grass Creek, light	1.35
Mule Creek (May 1, 1928)	1.35
Elk Basin	1.80
Lance Creek	1.35
Poison Spider (March 14, 1927)	1.60
Notches (March 14, 1927)	.85
Rex Lake (February 22)	1.35
Osage	1.35
Lost Soldier (contract)	1.80
Hamilton Dome (March 14, 1927)	.85
Greybull	1.35
Cat Creek (Montana) (July 27, 1928)	1.60
Sunburst (Montana) (May 18, 1928)	1.60
Torchlight	1.35
Artesia (July 27, 1928)	1.80
Hogback (New Mexico) (July 27, 1928)	1.60

Note—Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

Luling (January 11)*	$ .40
Mirando (January 7)†	.40
Rockdale-Minerva (April 16):	
Below 28 gravity	1.35
28-38.9 gravity	1.37
39-39.9 gravity	1.39
40 and above	1.41
Thrall‡	...
Callihan (May 15)	1.10
Lytton Springs (Lockhart)	See gravity table
Somerset	See gravity table

*Posted by Magnolia Petroleum Co. †Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co. ‡Thrall prices same as North Central Texas less 19½ cents per ewt. freight.

EASTERN STATES

(Effective January 4, 1929)

Penna Grade Oil in New York Transit Lines (New York)	$4.10
Bradford District Oil in National Transit Lines (Pennsylvania)	4.10
Penna Grade Oil in National Transit Lines (Pennsylvania)	4.00
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	4.00
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	3.90
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	3.85
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (July 13)	1.60
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s Lines (January 25, 1929)	1.60
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s Lines (January 25 1929)	1.75
Somerset Oil in Cumberland Pipe Line Lines (Kentucky) (Feb. 15, 1929)	1.60
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky) (Jan. 29)	.80

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective January 25, 1929)

Lima	$1.50
Wooster	1.42
Illinois	1.46
Indiana	1.37
Princeton	1.46
Plymouth	1.33
Waterloo (November 17, 1926)	1.26
Western Kentucky (Sept. 17, 1928)	1.53
Dundee, Mich. (Feb. 7, 1929)**	.50
Midland, Mich. (January 15, 1929)*	1.70
Saginaw, Mich., Saginaw Sand (February 10)†	1.80
Saginaw, Mich., Berea Sand (February 10)†	1.75
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky, (March 16)‡	1.50
Oil in lines in Stoll Oil Refining Co. in Oil City, Ky. (Feb. 16, 1929)§	1.60
Oil Springs (Canada)¶	1.37
Petrolia (Canada)¶	1.90

*Posted by Pure Oil Co.
†Posted by Sun Oil Co.
‡Posted by Paragon Development Co.
§Posted by Stoll Oil Refining Co.
¶Posted by Imperial Oil Co., Ltd.

MEXICAN CRUDE

Panuco heavy (f.o.b. Mexican ports)	$1.15

Note—Due to the fact that the exportation of Tuxpan light crude has become a negligible factor, prices will no longer be published.

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Oil Securities Soft Despite Trends

Bearish Tone of General Market and Sharp Advance in Call Money Rate. Reserve Board's Policy a Factor

By Special Correspondent

The oils again presented a poor front last week, when a very thin market was evident. In spite of trends within the industry which might be construed as having favorable possibilities for the industrial outlook, the oils were soft. This was probably caused by the bearish tone of the general market, and the sharp advances in call money rate.

The belief that the Federal Reserve authorities will attempt to curb much of the speculative business which has carried the stocks to high levels, was the cause for the pessimism in the general list.

Sinclair Consolidated Oil Co. was strong in anticipation of the resumption of dividends, which took place later in the week. The directors voted to pay a quarterly dividend of 50 cents and an extra dividend of 25 cents. This is the first dividend which this stock has paid since 1924.

Prairie Pipe was also in the dividend class, with a regular dividend of 75 cents per share, and an extra dividend of 50 cents per share. This would place the dividend rate of the old stock at $15 per year.

Reiter-Foster Oil Corp.

The income account of the Reiter-Foster Oil Corp for the year 1928 shows:

Gross operating income	$795,985.36
Operating charges—	
Production, geological and general expenses	$187,895.11
Depletion and depreciation	193,996.68
	$381,891.79
Net operating income	414,093.57
Nonoperating income	1,438.55
Net profit for period	$415,532.12

Standard Oil of New Jersey

The 270,748 additional shares of stock applied for listing on the New York Stock Exchange by Standard Oil Co. of New Jersey is for exchange for Beacon Oil Co. stock and for acquiring the balance, 40 per cent, of stock of Pennsylvania Lubricating Co. not previously owned. With this additional stock, the total amount applied for listing by Standard Oil Co. of New Jersey is 25,437,253 shares. Of the additional stock, 205,000 shares are for the acquisition, by exchange, of 461,250 shares of Beacon Oil common stock on the basis of one share for each two and one-fourth shares of Beacon.

Acquisition of the balance of Pennsylvania Lubricating Oil Co., making it a 100 per cent subsidiary, will require 65,748 shares of New Jersey stock in exchange for 4,000 shares of the Pen-Del Investing Co. The latter's entire assets consist of 4,000 shares of Pennsylvania Lubricating Co. stock which New Jersey has not held.

The New Jersey company states that on December 31, 1928, it caused to be transferred to its 100 per cent subsidiary, Stanco, Inc., 50,000 shares of Gilbert & Barker Manufacturing Co., incorporated in Massachusetts, in exchange for 43,075 shares of Stanco, Inc. At the same time 3,075 shares of Stanco, Inc., was exchanged for 1,000 shares of Stanco Distributors.

Louisiana Oil Refining Corp.

Report of Louisiana Oil Refining Corp. and subsidiaries for year ended December 31, 1928, shows net profit of $1,535,317 after interest, depreciation, depletion and Federal taxes, equivalent after dividend requirements on 6½ per cent preferred stock to $1.07 a share earned on 1,190,063 no par shares of common stock. This compares with $188,622 or $4.71 a share on 40,000 shares of 6½ per cent preferred stock in 1927.

Independent Oil & Gas Co.

Pamphlet report of Independent Oil & Gas Co. and subsidiaries (including Manhattan Oil Co. for five months) for year ended December 31, 1928, has been issued. Net profit of $5,092,858 after taxes, intangible drilling costs, interest, depreciation, depletion and amortization is the same as shown in preliminary statement, and is equivalent after preferred dividends of Manhattan Oil Co. to $5.29 a share earned on 959,457 no par shares of common stock. This compares with $2,313,431, excluding Manhattan Oil Co., equal to $4.62 a share on 500,000 shares in 1927. In figuring 1928 share earnings no consideration is given to new stock issued at close of the year, as the funds were not available until January 1, 1929.

Sun Oil

J. Howard Pew, president of the Sun Oil Co., in his comment on the company's report for 1928, says:

"The directors feel that the profits of the company's business during the year of 1982 were in every way satisfactory. The net income available for dividends and surplus, after payment of all operating and corporate expenses, and after setting aside adequate amount for depletion, depreciation and Federal income taxes, amounted to $5,008,027. These earnings enabled the company to make payment of $1 per share in cash dividends, a 6 per cent stock dividend on common stock and a 6 per cent cash dividend on preferred, in addition to setting aside $1,017,392 to the credit of surplus.

"The appreciation of the public for the company's product was evident by a 63 per cent gallonage increase in their purchases of Blue Sunoco, and a 23 per cent increase in lubricating oils, over the previous year. The gross sales for the year 1928 amounted to $64,288,289 as compared with $48,716,820 for 1927.

"At the beginning of the year there were outstanding 1,200,473 shares of Sun Oil common stock. During the year there were issued and sold to employes 8,609 shares in accordance with the company's stock plan; in December there were issued 73,441 shares by way of stock dividend and 15,104 shares for the purpose of acquiring the minority interest in the Sun Shipbuilding & Drydock Co. At all times during the year there were outstanding 50,000 shares of Sun Oil Co. 6 per cent preferred stock."

Associated Oil

Report of Associated Oil Co. and proprietary companies for the year ended December 31, 1928, shows net profit of $7,590,748 after Federal taxes, interest, depreciation and depletion, equivalent to $3.31 a share (par $25) earned on 2,290,412 shares of stock. This compares with $3,527,959 or $1.54 a share in 1927. In 1927, company had no Federal tax liability, there being no income after depreciation and depletion on which taxes were chargeable.

Tide Water Oil

Report of Tide Water Oil Co. and subsidiaries for year ended December 31, 1928, shows net income of $9,425,730 after depreciation, depletion, Federal taxes, etc., equivalent after 5 per cent preferred dividend, to $3.85 a share earned on 2,178,776 shares of no-par common stock. This compares with $3,031,386 or 92 cents a share on 2,168,413 shares in 1927.

Twenty Representative Stocks

The Oil and Gas Journal weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Saturday, was as follows:

January 26	$1.a
February 2	55.0
February 9	54.3
February 16	54.3

Richfield Oil

Richfield Oil Co. of California reports for year ended December 31, 1928, net profit of $7,818,076 after depreciation, depletion, interest, Federal taxes, etc., equivalent after 7 per cent preferred dividend requirements, to $4.65 a share (par $25) on 1,543,771 average number of common shares outstanding during the year, and to $3.80 a share on 1,887,122 common shares outstanding at end of the year. This compares with net profit of $3,742,884 in 1927, or $3.07 a share on 1,169,293 common shares outstanding at end of the year.

Regular Root Refining

Root Refining Co. declared the regular quarterly dividends of 45 cents on the convertible cumulative prior preference and 75 cents on the convertible cumulative preferred, both payable March 1 to stock of record February 20.

Tidal Osage

Tidal Osage Oil Co. reports for year ended December 31, 1928, net profit of $2,019,002 after interest, abandoned wells, depreciation, depletion, Federal taxes, etc., equivalent to $3.20 a share earned on 631,319 shares of common stock. This

INDEPENDENT OILS ON THE NEW YORK CURB

Quotation Compiled by Francis, Bro. & Co., Kennedy Building, Tulsa, Okla. Members New York Curb Market

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	For week ended February 15 Sales	Open	High	Low	Last	Change
$6.75	.45	2⅞	.55	1½	.53	$5	Amer. Con. Oilfields	5,300	64	64	61	61	— 1
..	..	7½	2⅝	9½	3½	N.P.	Amer. Maracaibo	9,500	6½	6⅝	6	6⅛	— ⅛
..	..	2¾	1	4½	2¼	$10	Argo Oil	200	2½	2½	2½	2½	....
..	..	..	..	..	..	..	Arkansas Natural Gas						
85¼	60	40	20½	55	32¾	N.P.	British American	200	53	53	53	53	— 3
28⅜	9¼	28¼	15½	4½	3⅞	25c	Carib. Syndicate (new)	1,600	3¼	3⅝	3⅛	3⅜	— ⅛
..	..	58¾	40¼	90⅞	54	$20	Cities Service	126,000	95½	111½	99½	109	+13⅜
..	..	95⅜	87	103½	94½	100	Cities Service, pfd.	1,800	97	97½	96	96¾	— ½
..	..	8⅞	7⅜	9⅝	8⅞	10	Cities Service, pfd. B	200	9	9	9	9	....
3½	1¾	3⅞	1½	3¼	76	1	Colombia Syndicate	1,900	1⅜	1½	1⅜	1½	+ ⅛
..	..	9¾	6⅜	8⅞	6¼	10	Consolidated Royal	2,500	9	9⅜	9⅛	9¼	+ 1⅛
16	10	14⅞	9½	17½	9½	N.P.	Creole Syndicate	5,600	9½	9½	9	9¼	+ 1⅛
..	..	3	.50	3¼	.76	N.P.	Crown Central	100	1¼	1¼	1¼	1¼	— ⅛
7⅞	6¾	12	4	33½	8¼	N.P.	Darby Petroleum	3,400	24	24	21	21¼	— 3⅛
..	..	2½	74	2¼	1	N.P.	Derby Oil & Refining	400	3	3⅝	3	3	— ⅛
..	..	16¾	4	21⅛	7½	N.P.	Derby Oil & Refining, pfd.	No sales.					
..	..	2	.40	.53	.15	N.P.	Gilliland ctfs.	No sales.					
98	92	118	86¼	165	101⅛	$25	Gulf Oil Corp.	3,600	145⅛	150⅛	145	147⅜	+ 2⅜
$3.00	.83	2½	.80	3⅜	1	5	Intercontinental Pet.	6,700	1⅞	2	1¾	1⅞	....
..	..	2¼	1⅛	3	1¼	N.P.	Kirby Petroleum	No sales.					
12¼	5¾	10⅞	5⅛	9⅜	5⅛	25	Leonard Oil & Dev.	1,300	5	5	5	5	....
27	20	27½	20	43⅞	20	N.P.	Lion Oil & Refining	300	29	29¾	29	20	— 1
46	30	59⅜	37	69⅛	48⅛	$25	Lone Star Gas	400	73	74⅜	73	74¾	+ 1⅜
2⅞	1	2⅞	.80	1⅞	.50	1	Magdalena Syndicate	1,800	80	84	77	80	....
34	12½	52	12	48½	32	N.P.	Margay Oil	No sales.					
8	5½	12⅛	5	8	2¾	N.P.	Mexico-Ohio Oil	100	5	5	5	5	....
1⅝	1⅛	1½	1	1⅝	.76	$1	Mountain & Gulf	2,700	1⅜	1⅜	1¼	1⅜	+ ⅛
26	23	29¼	22⅜	28⅞	19½	10	Mountain Producers	8,100	20⅛	20¼	19	20	....
6⅝	5	5⅞	4⅝	5⅝	4¼	5	New Bradford	1,500	4⅜	4⅝	4⅜	4⅜	....
..	..	16	9¼	11⅞	7⅛	1	New Mex. & Ariz.	300	7¾	7¾	7¾	7¾	+ ⅛
..	..	12⅜	9½	14¼	8½	N.P.	North Central Texas	1,000	10	10	9⅞	9⅞	— 1
10⅛	5⅞	9⅜	3¼	6	2⅛	N.P.	Pandem	2,800	2	2	2	2	....
12¼	11¾	12⅛	7	15⅝	8½	N.P.	Pantepec Oil	4,600	8⅝	8¾	8⅝	8½	— ⅛
22¾	12	13½	5⅛	7¾	4⅞	N.P.	Pennok Oil	400	4	4	4	4	— 1⅛
17	8½	24⅜	7	18	4⅞	25	Red Bank Oil	200	12	12	12	12	....
30¼	12	15½	3½	12⅞	4⅛	N.P.	Reiter-Foster	1,300	5	5⅛	5	5⅛	+ ⅛
7	4½	7	4½	12	4⅛	N.P.	Ryan Consolidated	1,500	8⅛	8½	8	8	— ⅛
10	7⅛	8	5¼	7¼	5½	$10	Salt Creek Cons.	100	5½	5½	5½	5½	....
35	24½	35½	27¼	35	23⅛	10	Salt Creek Prod.	2,700	24	24¼	23⅝	23⅝	— ⅛
6⅞	1¾	7	1¾	3½	1	5	Savoy Oil	200	1¾	1⅞	1¾	1⅞	+ ⅛
27	7⅝	26½	17	22⅞	13	10	Tidal Osage	No sales.					
25¾	7⅝	23¾	15	21¼	13⅛	10	Tidal Osage, nonvoting	200	11½	11½	11½	11½	+ ⅛
92	63½	92	63½	93¾	75	100	Transcontinental, pfd.	100	83	83	83	83	....
8	4½	7⅜	4¼	9⅛	4¾	5	Venezuelan Petrol	3,800	5	5⅛	5	5	....
8⅛	5½	8	4⅜	8¼	4⅞	$1	Woodley Petroleum	2,500	7¼	7⅞	7	7¼	....
6½	6	6	1¾	8⅝	2⅛	25	Y Oil & Gas (new)	200	4⅜	4⅜	4⅜	4⅜	....

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of New York Stock Exchange, Kennedy Building, Tulsa, Okla.

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low	Listed capital	Par value	Stocks—	Div. rate	Last paid	For week ended February 15 Sales	Open	High	Low	Last	Change
32⅞	24¼	37⅝	27⅝	43⅞	27⅛	(sh) 922,075	N.P.	Amerada Corp.	50cQ	Oct. 31, 28	16,100	32	34¾	31	31⅝	— ⅜
74	39⅞	82½	35⅛	85	51¼	(sh) 209,180	N.P.	American Republics Corp.	.....	.....	2,400	50	51⅝	49	49	— 1
60	44¾	50¼	35	53⅜	37½	$57,260,300	$25	Associated Oil	50cQ	Dec. 31, 28	17,000	45	45½	43	45¼	+ ¼
128⅜	97	131⅜	104	66⅜	50	50,000,000	25	Atlantic Refining	25cQ	Dec. 15, 28	118,000	55⅞	59⅝	54⅝	54⅞	— 1
33½	23½	35½	20¾	53	20	35,194,000	25	Barnsdall Corp.	50cQ	Feb. 5, 29	68,000	40⅝	43⅝	39¾	40	— ⅝
94¼	50	96¾	65	94⅞	68	20,785,400	100	General Asphalt	.....	.....	8,000	69	72	66½	66½	— 3⅞
72	50¼	175¾	60⅛	167	79	25,000,000	100	Houston Oil	.....	.....	6,400	84½	90	83¼	83¼	— 1¼
34	19⅝	32¾	17⅝	38⅜	21¾	(sh) 959,457	N.P.	Independent Oil & Gas	50cQ	Jan. 31, 29	10,700	30½	31½	30⅛	30⅜	— ⅛
12¾	7½	12⅛	7⅝	39⅝	9	8,203,080	$10	Indian Refining	.....	May 31, 24	33,200	32¼	36⅜	32⅛	32⅜	+ ⅛
25⅞	16½	37¾	20½	39⅛	27⅜	(sh) 3,992,122	N.P.	Lago Oil & Transport	.....	May 1, 27	1,800	27½	28	27	27½	....
19⅞	12	18⅛	10	19¾	9⅜	(sh) 1,237,078	N.P.	Louisiana Oil Refining	.....	.....	23,600	14	14½	13½	13⅞	— ⅛
28	16½	22¾	12	25½	12½	(sh) 330,000	N.P.	Maracaibo Oil	.....	.....	1,900	14	14½	12½	12½	— 1½
63⅝	49¼	58½	31	49¾	33	(sh) 2,316,692	N.P.	Marland Oil Co.	.....	Mar. 31, 27	26,400	36¼	38	36⅛	36⅝	— ⅜
13¾	6	9¼	3	7⅜	4⅝	(sh) 945,939	N.P.	Mexican Seaboard	.....	Dec. 15, 20	72,300	43	50½	42½	42⅝	— ⅞
37	20½	39⅜	25½	44½	25⅛	(sh) 1,357,461	N.P.	Mid-Continent Petroleum	50cQ	Feb. 15, 29	61,200	30	32¼	30½	30½	+ ½
104¼	90	105	97	120½	103¼	$6,718,000	$100	Mid-Continent Petroleum pfd.	$1.75Q	Sept. 1, 28	No sales.					
2½	½	3¾	1⅝	7⅜	2⅜	24,298,850	10	Middle States	.....	July 1, 23	4,600	4	4¼	4	4	....
76½	56⅛	65⅞	40⅛	54⅞	38¼	$48,807,400	$50	Pan American P. & T.	.....	Oct. 20, 27	3,100	42	42¼	41	41	— 1
78⅝	56⅞	66⅜	40¼	58⅞	37¾	121,097,900	50	Pan American P. & T. B	.....	Nov. 15, 24	18,600	41⅝	44	40⅞	40⅞	— ¾
46	30	37⅞	16¾	28⅜	15½	(sh) 400,000	N.P.	Pan American Western B	.....	Jan. 30, 27	500	15½	15½	14¾	15½	....
32	4½	18⅞	8	21¾	11½	(sh) 198,770	N.P.	Panhandle P. & R.	.....	.....	No sales.					
99⅜	51	83	54	108	70	$2,935,200	$100	Panhandle P. & R. Pfd.	.....	July 2, 23	No sales.					
57⅜	40	60¼	36¼	53⅞	35¼	(sh) 2,406,796	N.P.	Phillips Petroleum	37½cQ	Jan. 2, 29	114	38½	39¼	37½	37⅞	— ⅛
....	....	1⅛	½	5¼	½	$29,622,925	$25	Pierce Oil Corp.	.....	.....	6,800	2⅜	2½	2¼	2⅜	+ ⅛
7	2¼	5½	2½	7	3½	(sh) 2,500,000	N.P.	Pierce Petroleum	.....	.....	12,100	4⅝	5¼	4⅝	5¼	+ ½
60¼	48	55½	45⅝	68	46	60,000,000	25	Prairie Oil & Gas	.....	Aug. 31, 27	47,900	59	73⅜	69⅛	69⅜	— ⅜
137½	122½	190	130¾	280	172	$101,250,000	$25	Prairie Pipe	.....	.....	13,400	56¾	57⅞	55⅛	55⅝	— 1
20⅝	11	33⅞	16¾	29⅞	16	$37,450,850	$50	Producers & Refiners	.....	Sept. 15, 23	1,800	19¾	19¾	18¼	18¼	— 1½
41⅜	30¾	50	36⅞	49⅝	41	2,845,350	50	Producers & Refiners pfd.	.....	May 1, 25	36,000	39	39	39	39	— 1
31	25¼	33½	25	31⅝	19	75,959,350	25	Pure Oil Co.	25cQ	Dec. 1, 28	13,500	23⅝	24⅜	23¼	23¼	— ½
27½	22	28⅝	25⅜	56	23	47,025,000	$25	Richfield Oil	.....	Nov. 15, 28	30,200	42¼	43⅞	39¾	39¾	— 3⅛
57⅝	47⅜	54½	44¼	64	44⅝	(sh) 611,303	13.40	Royal Dutch, N. Y. shares	50cQ	Jan. 10, 29	1,700	50⅞	51¼	50⅛	50⅜	— ⅜
49⅝	40½	47⅞	41⅜	57½	40⅝	(sh) £30,000,000	£1	Shell Transport & T.	$1.455	July 23, 28	400	45	45	45	45	— ⅜
31	24	31¾	24⅝	39¼	23¼	(sh) 20,000,000	N.P.	Shell Union Oil	35cQ	Dec. 31, 28	26,200	26¼	27⅜	26⅛	26¼	— ⅛
28⅜	15⅛	26⅜	14¼	27¼	18⅛	$8,357,000	$10	Simms Petroleum	10cQ	Dec. 15, 28	4,200	19⅜	20½	19¼	19¼	— ½
24⅞	16⅜	22⅜	15	46⅜	17⅜	(sh) 4,501,915	N.P.	Sinclair Consolidated	.....	.....	771,700	38½	42½	37⅝	39	+ 2¼
99½	90	104½	97	110	102½	$16,604,600	$100	Sinclair Consolidated pfd.	$2Q	Nov. 15, 28	900	109¾	109¾	109¾	109¾	....
37⅛	26⅝	37⅜	24½	42⅝	25	27,396,590	25	Skelly Oil Co.	50cQ	Dec. 15, 28	16,500	34⅛	36¼	33	33⅜	— ⅞
63⅝	51½	60⅜	50⅜	80	53	(sh) 12,594,098	N.P.	Standard Oil of California	65½cQ	Dec. 15, 28	42,800	65⅞	68	64¼	65¾	— ½
46⅜	37½	41⅜	35⅛	59⅜	37¾	$611,120,700	$25	Standard Oil of New Jersey	25cQ*	Dec. 15, 28	116,100	48¾	51	48	48	— ¾
47¼	30⅝	34⅛	29¾	44¼	28¾	427,973,275	25	Standard Oil of New York	40cQ	Dec. 15, 28	68,700	39⅞	41¼	39	39⅛	— ⅞
41⅝	30⅛	34⅞	30	77	31½	(sh) 1,206,073	N.P.	Sun Oil	25cQ	Dec. 15, 28	4,900	60½	62	60	60	+ 2
5¼	1	6½	3⅛	14¼	2½	(sh) 1,267,000	N.P.	Superior Oil Corp.	.....	Dec. 20, 20	20,700	7½	8	7	7¼	— ⅜
58	48	58	45	74¾	50	$211,076,650	$25	The Texas Corporation	75cQ	Jan. 1, 29	1,000	59⅜	57¾	56¾	57¼	— ¼
19½	12	18⅞	12	26⅝	12⅛	8,380,340	10	Texas Pacific Coal & Oil	.....	Jan. 3, 28	40,800	18⅞	20	18¼	18¼	+ ¼
39¼	27	29⅛	19	41½	19⅝	(sh) 2,168,410	N.P.	Tide Water Oil Co.	20cQ	Dec. 15, 28	8,200	28¼	32¼	28¼	32	+ 4⅞
103	87¼	90⅛	85	100⅛	86	$20,705,200	$100	Tide Water Oil Co. 5% pfd.	$1.25Q	Nov. 15, 28	1,100	92	92¾	92	92¾	+ ¾
27	20⅞	19⅛	15¾	25	14¾	(sh) 4,796,158	N.P.	Tide Water Associated	.....	Aug. 1, 27	17,100	17⅞	19⅜	17⅝	18	+ ⅛
5½	3	10⅜	3¾	14¾	7¼	(sh) 3,742,029	N.P.	Transcontinental Oil	.....	.....	20,500	9½	10⅛	9⅜	9⅜	— ⅛
58⅜	37¼	56½	39⅝	58	42¾	$94,798,100	$25	Union Oil of California	50cQ	Nov. 10, 28	24,700	49¼	49¾	47⅛	47½	— 1⅞
120⅜	84¼	127½	94	128⅛	110	31,061,200	100	Union Tank Car Co.	$1.25Q	Dec. 1, 28	2,900	135	142	135	140	+ 3
30⅛	23½	34½	24½	44⅞	26	(sh) 356,000	N.P.	Warner Quinlan	50cQ	Jan. 2, 29	11,800	35⅝	36¼	34	34	— 1⅝
29⅜	25⅛	27½	20	38	20⅛	(sh) 490,000	N.P.	White Eagle Oil & Refining	50cQ	Jan. 20, 29	3,200	31⅞	33	31¾	32	+ ½
								Wilcox Oil & Gas	.....	.....	13,000	25½	28	24¼	24¼	— ¾

*Also extras. †Ex-dividend.

STANDARD OIL STOCKS ON NEW YORK CURB

21	16	21⅝	17⅞	22⅜	14⅞	£4,126,460	£1	Anglo-American Oil	.....	June 6, 28	5,000	....	17⅝	16	17	+ 1
....	....	3¾	¾	5	1¼	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	100	2	2	2	2	— ⅛
76	65	69	50	56½	44½	1,000,000	25	Borne Scrymser	$18.A.	Oct. 15, 28	150	46½	46½	46	46	....
59½	42	60	45	76	53	10,000,000	50	Buckeye Pipe Line	$1Q	Dec. 15, 28	400	69⅞	69⅞	69¾	69⅞	— ⅛
82½	65	126	76½	161	117½	3,000,000	25	Chesebrough Mfg.	$1Q	Dec. 28, 28	100	140½	140½	140½	140½	— 1½
25⅞	17½	22⅝	16¼	23	16	36,057,840	10	Continental Oil	.....	Dec. 15, 27	76,000	....	23¼	21⅜	22⅞	....
137	102	137	89	114	67	1,500,000	50	Cumberland Pipe Line	$1A	Dec. 15, 28	No sales.					
63⅜	43	68½	47	88	64¼	5,000,000	100	Eureka Pipe Line	$1Q	Nov. 1, 28	550	64¾	68	64¾	68	— 1
32½	9⅞	13½	3½	13	4¼	16,000,000	100	Galena Signal Oil	.....	June 30, 25	No sales.					
68½	52	68½	54	114¾	59¼	73,117,577	25	Humble Oil & Refining	30cQ*	Jan. 1, 29	7,000	92	92⅞	91	91	— 1⅛
144½	125½	182	123¾	290½	176½	20,000,000	100	Illinois Pipe Line	10%S.A.	Dec. 15, 28	400	300	300½	300	300	+ 1
....	....	64¾	37¾	104	56¾	(sh) 6,458,267	N.P.	Imperial of Canada	25cQ	Dec. 1, 28	2,000	93½	95	89	89	— 5
72½	58	94½	61	91⅞	74⅜	$5,000,000	$50	Indiana Pipe Line	$1Q	Feb. 15, 29	No sales.					
35½	28¾	39	28¼	55	35	(sh) 7,123,444	N.P.	International Petroleum	25c	Nov. 30, 28	7,300	54	58	53¾	54	— ¾
20¾	12½	24	13½	32⅜	19⅜	$6,363,350	12.50	National Transit Co.	25c	Dec. 15, 28	1,700	23⅝	24½	23	23	— 1½
51½	27¼	44½	31¼	75	38½	5,000,000	100	New York Transit	.....	July 15, 26	No sales.					
80½	64	100	70	69	56½	2,000,000	50	Northern Pipe Line	$38.A.	Jan. 2, 29	No sales.					
67¾	55¾	67⅞	52	84	58½	60,000,000	25	Ohio Oil Co.	50cQ*	Dec. 15, 28	1,800	65⅛	67½	65⅛	65⅜	....
24⅜	15	39	12	84	28	10,000,000	25	Penn Mex. Fuel	$1.25	Dec. 15, 28	900	35	38	33½	37	+ 1
220	84½	201½	175½	220	167	4,000,000	100	Solar Refining	$58.A.	Dec. 20, 28	No sales.					
74½	61½	27¼	15½	19	15	1,000,000	10	Southern Pipe Line	$2	Dec. 1, 27	No sales.					
50	34½	41½	35	71⅞	36¾	2,000,000	25	South Penn Oil	50cQ	Dec. 31, 28	1,300	65⅜	65⅜	64	64	— ⅝
56	47½	83	55½	102	70	3,500,000	100	Southwest Pa. Pipe Lines	$1Q	Oct. 1, 28	5,000	68¼	70	68¼	70	+ 1¾
70½	60½	81½	64⅝	95⅞	70⅞	228,415,463	25	Standard Oil of Indiana	62½cQ	Dec. 15, 28	28,300	92⅞	93¾	89	89	— 3¼
38½	16½	20⅞	14⅝	27⅜	15	8,000,000	25	Standard Oil of Kansas	.....	June 16, 24	1,300	19¾	19¾	19¼	19¾	+ ⅝
134⅝	108	130	111½	179¾	122¼	17,012,559	10	Standard Oil of Kentucky	$1Q	Dec. 31, 28	6,800	41⅝	41⅝	40	40¾	....
51¼	42	49½	40	54⅞	39⅞	4,559,850	25	Standard Oil of Nebraska	63cQ	Dec. 20, 28	700	48	48½	48	48	+ ⅛
372	288	87½	72	134	71	14,000,000	25	Standard Oil of Ohio	62½cQ	Jan. 2, 29	260	115	115½	115	115	....
21	15	21	14½	23½	16	861,000	25	Swan Finch Co.	.....	Nov. 1, 19	No sales.					
109⅜	90¼	....	....	111	72	125,619,000	25	Vacuum Oil	75cQ	Dec. 20, 28	5,100	117	121	116¼	116½	— 1¼

*Also extras.

compares with $2,524,359 or $3.99 a share after preferred dividends paid in 1927. Preferred stock was retired January 15, 1927.

Tide Water Consolidated

Report of Tide Water Associated Oil Co. for year ended December 31, 1928, shows consolidated net income of $14,132,542 after depreciation, Federal taxes, minority interest, etc., equivalent after deducting 6 per cent preferred dividends to $2.01 a share earned on 4,852,915 no-par shares of common stock. This compares with $5,345,872 or 20 cents a share on 4,776,323 shares in 1927.

Simms-Pennok

Simms Petroleum Co., Inc., has made offer to exchange one share of its capital stock for each four shares of capital stock of Pennok Oil Corp., provided at least 51 per cent of the outstanding stock of Pennok, or 70,482 shares, are deposited for exchange with New York Trust Co., depository, on or before March 29, or before the expiration of such further extension of time as Simms Petroleum Co. may make, not to exceed 30 days. Fractional shares of Simms stock will not be issued, but the company has made arrangements with the depository to purchase on its behalf Pennok stock deposited in excess of multiples of four shares at the rate of $5 a share.

Sinclair Consolidated

Sinclair Consolidated Oil Corp. declared quarterly dividend of 50 cents and an extra dividend of 25 cents on the common. It is the intention of directors that the stock be considered on a regular basis of $2 annually, with extra payments depending on oil conditions generally and earnings.

This is the first dividend declared

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E. H. LEROUX HAS HAD VERY COLORFUL CAREER

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tion he has an opportunity to invest his savings in stock of the company, which is offered to him under attractive conditions, including easy terms of payment. In short, the welfare of the worker has become a thing of first importance, where formerly hiring, firing and getting the greatest possible amount of work out of a man while he was on the payroll seemed —at least to the workman—to be the chief functions of the executive. Labor unions have gained no foothold among workmen in the Mid-Continent and eastern oil fields for the simple reason that the worker feels that if he joined a union he merely would have to pay dues and meet other financial demands of the organization for benefits which already have been accorded him voluntarily, not to mention other advantages he enjoys which the union could not give to him and which he fears he might have to forfeit if cold bargaining were to take the place of the co-operation and good will which now mark his relations with his employer."

Like other men who have served an apprenticeship at the telegraph key, Mr. Leroux likes to listen to the dots and dashes that speak a clear language to the initiated but are meaningless clatter to others. Frequently he strolls out to the telegraph room of his company in Muskogee and listens to the reports coming in over the wires from pump stations and branch offices.

Resourcefulness? Well, How's This?

Resourcefulness in trying situations was one of the qualities that carried E. H. Leroux from the telegraph instrument and the account books of the Oklahoma Pipe Line Co. to the presidency of that concern, and he in turn watches for the same quality in men occupying positions under him. Among instances of inventiveness and originality, with unscheduled comedy features, which the pipe line president delights to recall is one that occurred several years ago in which Bruce Ramsey, R. W. Sparrowhawk and Matt Bonhan figured. The three at that time were members of a connection gang.

One of the company's lines in Osage County had sprung a leak under 6 feet of water in a creek. The three workmen tried to stop the leak with a collar leak clamp. They were able to dive down to the point of the trouble with the clamp, but no one of them could hold his breath long enough under water to put the clamp on. Then Ramsey had a bright idea. Dashing off to Fairfax, the nearest town, he bought about 20 feet of gas hose and a few clothespins. Returning to the scene of operations, he pressed one of the clothespins firmly upon his nose, effectually shutting off his breath by that route. Then he took one end of the hose in his mouth and dived down to the leak. Sparrowhawk handled the other end of the hose which supplied the diver with air.

The improvised diving apparatus did everything that was expected of it. Ramsey was getting the clamp in place, doing a thorough, unhurried job. Then Sparrowhawk, just to show that no one person around there had all the bright ideas, had one himself. Acting upon it, he dropped his end of the air line into the water, at the same time discreetly starting to move away from the creek. Of course Ramsey, drawing deeply for breath upon the end of the hose which he held between his teeth, suddenly sucked in a rush of water. Strangling and furious, he rose to the surface, a gurgling mixture of water and inelegant words issuing from his mouth.

Looked Ahead and Kept on Running

Sparrowhawk discontinued keeping his head turned backward to see the result of his experiment and devoted all his energy to increasing the distance between him and Ramsey. He had such a lead that pursuit was useless. Besides, Ramsey's attire—or lack of it—at that juncture was not suited for a cross-country run. Leaving nothing unexpressed concerning his opinion of Sparrowhawk, Ramsey dived down again and finished the job he had started, first assuring Bonhan that there would be murder if any more tricks were played with the air hose. Both Ramsey and Sparrowhawk now are division superintendents. Bonhan is a pump station engineer.

Mr. Leroux and Miss Agnes McGuinn were married in Oil City, the latter's home, 28 years ago. They have resided in Muskogee since 1909. They have two sons and a daughter.

Mr. Leroux is a member of the Town and Country Club, which has an 18-hole golf course; the Sequoyah Club, a hunting and fishing organization, and the Rotary Club of Muskogee. He is a director of the Commercial National Bank of Muskogee. Mr. Leroux's skill as a golfer, if any, probably had best not be discussed. There are few facts to go on, anyway, largely because he does most of his playing with Paul Griffin, treasurer of the Oklahoma Pipe Line Co., and Henry P. Hellinghauser, purchasing agent. Mr. Griffith, who usually does his 18 holes in 83 to 85, is the Town and Country Club champion. Mr. Hellinghauser generally requires about 90. Mr. Leroux, according to reports which he does not deny, consumes 95 to 100 strokes and is granted a handicap by his two adversaries. Whether he cherishes a secret determination that one of these days he will play these fellow pipe line officials on even terms is something that one hardly feels like asking Mr. Leroux.

COMMISSIONER SANCTIONS 650-000-BARREL OUTPUT

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in an average time of 45 minutes, with an average pressure of about 400 pounds.

It is now believed that many companies will join this movement next Sunday, among them being the Indian Territory Illuminating Oil Co., the Tidal Oil Co., and T. B. Slick. The Mid-Continent Petroleum Corp. is reported as being favorable to the Sunday shut-down plan, and will decide this matter some time during the week.

That the majority of the producers are falling in line with the proration plan is indicated by the many letters notifying the umpire of drilling wells being shut down on top of the sand for the required period of four days.

There seems to be two conditions in the proration plan which have not been thoroughly understood by many, first the provision regarding the shut down of drilling wells on top of the sand, and second that the proration may be accomplished any time during the 15-day period at the discretion of the producers. The first condition means that the present crop of drilling wells reaching the sand between the dates of February 14 and March 1 will be shut down for four days. The wells which will reach the sand between March 1 and March 15 will be required to shut down for eight days on top of the sand and wells reaching the sand between March 15 and April 1 will be required to shut down on top of the sand for 12 days. The four-day shut down on top of the sand increases with each successive 15-day period during which proration is in effect.

The discretionary production is also misunderstood. It means that a producer having a permitted production of 1,000 bbls. per day during the 15-day period from February 14 to March 1 may produce 15,000 bbls. of oil during that time, but may produce 3,000 bbls. per day for 5 days, 1,000 bbls. per day for 15 days, or if possible 5,000 bbls. per day for 3 days. He may not exceed his permitted production for the period, but may produce the oil at any rate acceptable to him. There are many who have expressed their desire to pinch their production slowly at the start, preferring to make the reduction gradually, and have their properties producing at a low rate for the last part of the period.

According to some of the officials of the companies, there is now a concerted movement to spread the Sunday shut-down policy to refineries and pipe line systems, and should this be done, the entire industry will be placed on the six-day per week basis.

NO OIL LEGISLATION IS LIKELY IN TEXAS NOW

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and every day of such violation, to be recovered in any court of competent jurisdiction in the county in which the violation occurs, such suit by direction of the commission to be instituted and conducted in the name of the State of Texas by the attorney-general of the State, or by the county or district attorney of the county in which the violation occurs. Such attorney-general, by direction of said commission, shall also have the power to enforce the provisions of this Act and those of Title 102 of the Revised Civil Statutes of Texts, of 1925, and of all rules, regulations and orders promulgated by said commission thereunder, by suit for injunction brought in the name of the State of Texas in the county in which the property involved is located.

Section 5. No rule or regulation shall be adopted dealing with the conservation of oil and gas and the prevention of the waste thereof, except after hearing upon at least 10 days notice.

Section 6. If any person, firm, corporation or other party at interest be dissatisfied with any rule, regulation or order adopted by the commission such dissatisfied party may file a petition setting forth the particular cause of objections thereto in a court of competent jurisdiction in Travis County against the commission as defendant. Said action shall have precedence over all other causes on the docket of a different nature and shall be tried and determined as other civil cases in said court. Either party to said action may have the right of appeal; and said appeal shall at once be returnable to the appellate court, and said action so appealed shall have precedence in said appellate court of all causes of a different character therein pending. If the court be in session at the time such right of action accrues the suit may be filed during such term and stand ready for trial after 10 days notice. In all trials under this section the burden of proof shall rest upon the plaintiff.

Section 7. This Act shall be cumulative of all the laws of this State regulating the conservation of oil and gas not in direct conflict herewith and not hereby expressly repealed, but it shall repeal all laws and parts of laws in conflict with its provisions.

Section 8. If any of the provisions of this Act shall be held unconstitutional or void, such holding shall not nullify the remaining parts.

OKLAHOMA CITY WELL IS ON BIG STRUCTURE

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Cromwell showed a very pronounced dip on this lime.

Aside from the Oswego lime, the Shell Petroleum Corp.'s No. 1 McCully, in Section 30-19-4w, which discovered the Wilcox horizon in the Lovell Field of Logan County, found the formations between the Oswego and the Wilcox sand at a much higher position than the Oklahoma City well. In this connection it might be observed that the top of the Oswego in the latter well is subjected to considerable debate, and accordingly on the cross-section it is marked "probable."

There is a pronounced dip in the formation in the Cromwell well, and the dip increases on each successive strata. The tops of the Hunton, Viola and Simpson are found at a very much lower position in the Cromwell well than in the Oklahoma City discovery well. The Wilcox horizon (and there is also some doubt of this formation) in the Cromwell well was found at a depth of 6,942 feet, and a small showing of oil was discovered slightly below that depth.

There is one interesting fact in both the Indian Territory well, and the Shell Petroleum well, and that is that each has penetrated about 100 feet of pay horizon. In the case of one well this is supposed to be Simpson sand while the other is making the production from the true Wilcox horizon.

There has been unlimited discussion regarding the various deep formations in this territory, and geological opinion has not been unanimous regarding the producing formation in the Oklahoma City well. The majority have inclined to the theory that it is Simpson sand, but there are some who maintain that the oil is coming from a formation termed the Arbuckle lime, which correlates with the Siliceous lime. If the latter theory be true, the well is below the Wilcox horizon.

When the present crop of wells is completed some time during the summer of 1929, a much better idea of the subsurface conditions will be available.

BRUNER FIELD IS ONLY THREAT IN SOUTHWEST

Reviewing petroleum development in East Texas and along the Balcones fault zone in 1928, before the New York meeting of the A.I.M.E., David M. Collingwood said:

The Luling, Powell and Mexia Fields have supplied 11,500,000 bbls., or 73 per cent of the total production in the East Texas area for 1928. By projecting the 1927 to 1928 annual decline rates these fields may be expected to produce about 3,000,000 bbls. less in 1929.

The Bruner Field, which was producing about 10,000 bbls. a day at the end of 1928, with about 40 wells drilling, will be drilled up rapidly in 1929, as the acreage is split up into many small holdings, and no co-operative curtailment program is being considered. Under these conditions the field will undoubtedly produce at a much higher figure than 10,000 bbls. a day before reaching its peak, but using this very conservative figure for an average production for 1929 an annual total of nearly 3,750,000 bbls. is to be expected. This will more than offset the expected decline in the Luling, Powell and Mexia Fields.

With the exception of the two salt dome fields, Boggy Creek and Clay Creek, there are no indications at present of the other new fields discovered in 1928 being other than small fields, both in quantity of production and areal extent, although of course development may prove larger areas than anticipated. Sufficient new production may reasonably be expected from these small fields to offset the decline in the older smaller fields.

Sufficient production acreage has been proved on the southeast flank of the Boggy Creek Dome, which, if opened up for intensive development, would be capable of producing enough oil to materially swell the production figures for 1929. Since, however, the acreage is controlled principally by one big company there will be no competitive drilling, and probably a very conservative drilling program will be followed.

Should a considerable productive area be proved on the Clay Creek Dome there will also be no danger of an intensive competitive drilling campaign with consequent overproduction and distress oil, since the acreage on this dome is held by one company.

In summing up it appears assured that the area can maintain its present output from resources already proved, but in some cases not being produced intensively. The only threat of an increase of production appears to be in the Bruner Field. If co-operative curtailment had been in force from the discovery of this field, the East Texas area would be reasonably assured of its share in the control of production so necessary for the industry at this time of overproduction of crude.

OIL MONOPOLY IN JUGOSLAVIA

It is announced that the bill for the state monopoly of the oil industry in Jugoslavia is now operative, and provides for the reservation to the government of the exclusive right to import, store and sell petroleum and petroleum products, with power to transfer the monopoly to private undertakings subject to state participation.

SUNDAY SHUTDOWN IN SEMINOLE AND BURBANK

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expected they will be shut down the full 24 hours in a few weeks' time.

Pleased With Result

Late Monday afternoon Superintendent John Wolfe of the Prairie Oil & Gas Co. expressed himself as well pleased with the results of the Sunday shut down. Production in the Seminole area was cut from 38,000 bbls. to 8,000 bbls. Much of the 8,000 bbls. came from wells that continued to flow after the compressors were shut down, and the remainder from the wells that were cut off production only eight hours on account of the unusual quantity of water they have been producing. It is expected that next Sunday will see the Prairie's Seminole properties even closer to the zero mark than on the first Sunday. It took but a short time to get the wells back on production. Some of the leases were producing oil 20 minutes after the compressors were put to work, others in less than an hour. A frozen gas line caused delay in the resumption of production on some wells, but the Prairie properties were all producing as usual early Monday morning. R. F. MacArthur, vice president of the Barnsdall Oil Corp., also reports the experiment as successful. It cut production from 21,000 bbls. down to 3,000 bbls. on the first Sunday and every well was back on production within an hour after operations were resumed.

Would Extend it to Drilling

Oklahoma oil men who have been advocating a Sunday shut-down movement did not have in mind confining it to the production of oil. They have advocated a six-day week in drilling operations, as well. They want all drilling operations stopped on Sunday wherever possible. In the case of rotary drilled wells where it is necessary to continue drilling until a casing point is reached, they recommend that drilling be stopped at the casing point long enough to make up for any Sunday work that has been done.

One argument advanced in favor of a general shut down of drilling and producing operations on Sunday is that it will permit thousands of workmen an opportunity to use their automobiles for pleasure trips, which will add materially to the quantity of gasoline consumed on the very days that no oil is being produced, thus assisting in double measure to obtain a balance between production and consumption.

Late Fields

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not penetrated any big thickness of this sand to date. A list of the new Mission Sinclair Oil & Gas Co.'s No. 1 Hoyecha, Section 7-8-6, sand 4,232-34 feet, swabbed 680 bbls.; No. 2 Hoyecha, sand 4,268-71 feet, hole full oil; No. 3 Hoyecha, sand 4,233-55 feet, swabbed 690 bbls. in 12 hours; T. B. Slick's No. 1 Crane, Section 7-8-6, sand 4,303-05 feet, hole full oil; Gypsy Oil Co.'s No. 1 Micco, Section 8-8-6, sand 4,351-57 feet, pumping 1,000 bbls.; No. 1 S. Micco, Section 8-8-6, sand 4,488-91 feet, swabbed 100 bbls.; Amerada Petroleum Corp.'s No. 1 Rice, Section 5-8-6, sand (Simpson) 4,250-97 feet, swabbed 116 bbls.; Gypsy Oil Co.'s No. 2 Mains, Section 5-8-6, sand 4,439-42 feet, swabbed 350 bbls.; No. 4 Maines, sand 4,510-12 feet, 2,000 feet of water in hole; Prairie Oil & Gas Co.'s No. 2 Minnie, Section 5-8-6, sand (Simpson) 4,383-4,451 feet, swabbed 140 bbls.; Gypsy Oil Co.'s No. 3 Barkus, Section 6-8-6, sand (Simpson) 4,405-37 feet, hole full of oil; No. 4 Barkus, sand 4,555-89 feet, hole full of oil; No. 5 Barkus, sand 4,619-22 feet, swabbed 490 bbls.; No. 6 Barkus, sand 4,635-39 feet, swabbed 1,000 bbls.; No. 5 Mission, Section 6-8-6, sand 4,480-83 feet, swabbed 1,125 bbls.; No. 6 Mission, sand 4,722-24 feet, swabbed 1,114 bbls.; No. 7 Mission, sand 4,703-05 feet, hole full oil.

W. B. Pine's No. 1 Harjo, Section 6-8-6, Simpson sand 4,378-4,403 feet, hole full oil; Prairie Oil & Gas Co.'s No. 1 Milton, Section 6-8-6, Simpson sand 4,356-00 feet, swabbed 100 bbls.; No. 1 Townsend, Section 6-8-6, sand 4,253-56 feet, swabbed 490 bbls. in six hours; Twin State Oil Co.'s No. 1 Judy, Section 6-8-6, sand 4,189-92 feet, swabbed 100 bbls. in three hours; No. 2 Judy, sand 4,176-81 feet, hole full oil. Gypsy Oil Co.'s No. 1 Barkus, Section 6-8-6, sand 4,515-22 feet, swabbing 20 bbls. water, now shut down; No. 2 Barkus, sand 4,481-84 feet, swabbed 165 bbls. in six hours. Darby Petroleum Co.'s No. 1 Judy, Section 1-8-5, sand 4,343-48 feet, swabbed 500 bbls. oil and 120 bbls. water; Gypsy Oil Co.'s No. 2 Cosar, Section 1-8-5, sand 4,351-53 feet, swabbed 170 bbls. in six hours; No. 3 Cosar, sand 4,541-44 feet, swabbed 510 bbls.; Magnolia Petroleum Co.'s No. 1 Alicky, Section 1-8-5, sand 4,673-76 feet, hole full water, dry and abandoned. Shaffer Oil & Refining Co.'s No. 1 Weaver, Section 12-8-5, sand 4,296-4,301 feet, swabbed 625 bbls.; Tidal Oil Co.'s No. 1 Nellie, Section 12-8-5, sand 4,354-64 feet, swabbed 1,275 bbls.

GULF COAST

HOUSTON, Tex., Feb. 19.—Another Gulf Coast geophysical dome was opened for production late Monday when The Texas Company's No. 1 Botney Bay at Port Barre, St. Landry Parish, Louisiana, was bailed in flowing initially at the rate of 500 bbls. of pipe line oil daily. The oil tested 22 gravity. Production is from a sand at 3,729-63 feet with 8¼-inch casing set at 3,705 feet. The oil is flowing through the casing along with an estimated 7,000,000 feet of gas. This is the first test drilled on this dome and is the first production in St. Landry Parish. The dome was discovered in 1926 and lies mostly in Range 5e and 6s. It is one of the most northerly of south Louisiana coastal domes. In contrast to most of the newer domes in which acreage is controlled as a unit by one or more large companies acreage on this dome is badly cut up with The Texas Company, Pure Oil Co., Gulf Refining Co. and several others holding divided tracts. Offsets will be necessitated immediately by the Gulf Refining Co.

Rycade Oil Corp.'s No. 21 Wisdom at Nash Dome, Brazoria County, was brought in Monday flowing initially an estimated 1,000 bbls. daily from sand at a total depth of 4,271 feet.

Navarro Oil Co.'s No. 4-A Robinson, Blue Ridge, a former well deepened, is flowing 200 bbls. daily from sand at 4,068 feet. Humphrey Corp.'s No. 1 Cornelia Barber, Barbers Hill, Chambers County, tested salt water at a total depth of 4,996 feet. It will be deepened.

NORTH LOUISIANA

SHREVEPORT, La., Feb. 19.—Gulf Refining Co. apparently has picked up the Champagnolle shallow sand with No. 1 Caddo in NE NE Section 30-17-14, in the southwest corner of the old El Dorado East Field. Bailed late Monday with 6⅝-inch cemented at 2,859 feet, it came in with an estimated 45,000,000 feet of gas and 45 bbls. of fluid of which 30 bbls. was oil. Total depth 2,850 feet. Location is approximately 2 miles southwest of Root Refineries' No. 1 Jerry, Section 21-17-14, the farthest southwest well in the Champagnolle district, which pumped 350 bbls. of fluid, 45 per cent water, from 2,798 feet on completion last July. This well is approximately 2 miles south and southwest of production in the Champagnolle 3,200-foot area. Production of the original east side wells was obtained in lenses ranging from 2,140 to 2,280 feet, similar to conditions prevailing in Champagnolle, Gulf company testing salt water at 2,604 feet in this well.

MARQUETTE ELECTION

Officers and directors of the Marquette Oil Co., formerly the Gladys Belle Oil Co., have been elected for the ensuing year. Harrison S. Green was named president, Harry Slater, vice president; Johnson Hill, vice president, and J. C. Miller, secretary-treasurer. R. P. Brewer, Harrison S. Green, M. M. Doan, Harry Slater, W. H. Foster, Johnson Hill and J. C. Miller were chosen directors.

A.O.M.A. Convention Was Devoted Chiefly To Discussing Code

CHICAGO, Feb. 16.—The election of officers of the American Oil Men's Association was postponed at the annual meeting held here this week, the present officers holding over. Members who had attended the St. Louis conference of the American Petroleum Institute reported at the second day of the convention, deprecating any opposition to the proposed code of trade practices on the ground that some such code was necessary to the progress and prosperity of the industry. It was admitted that the code as presented and approved at the St. Louis meeting might be capable of improvement in some ways, but it was urged that it was the first step and that a first step must be taken. Subsequently it could be modified as found necessary or desirable.

The announcement was made that there would be no record made of the discussion and all were asked to treat the remarks of individuals or of representatives of organizations as just so much business discussion among friends. A strong attack was made by one speaker on the statement that the industry had had an opportunity to consider and approve the proposed code.

The matters in the code that were specifically attacked were the sections relating to the furnishing of equipment and that excepting commercial accounts from the posting of prices. In the matter of furnishing equipment it was claimed that, as drawn and approved, the code gave a decided advantage to the oil companies which had their equipment already installed and prevented free competition with them for the business of such dealers as had their equipment.

The protest against the clause exempting commercial accounts from posting of prices was declared by some speakers as being of the greatest significance as it would bar the smaller or local dealer from competing for the business locally of the large organizations which had representatives or maintained trucks or cars for the use of their business over wide areas. It was claimed that in some metropolitan areas this business amounted to 40 per cent of the total quantity of gasoline consumed and that the commercial account carried with it another 10 per cent of pleasure car consumption, as it would be impossible to prevent the owner of a fleet of trucks from fueling his car under the contract, as he could contend that he used the car in his business. It was also pointed out that commercial accounts were such as had a contract and that any attempt to induce a contract customer to purchase gasoline from another source would be construed as against another section of the code which regulated unfair competition. It was also said to give an unfair advantage to the company which sold to commercial accounts and did not post the price and that all prices should be posted by all sellers of gasoline to any consuming customer.

At the close of the discussion it was asked that those who favored the principal of a code of trade practices indicate it. No record was made of the vote but it seemed to be nearly unanimous. It was next asked that all who favored the code of trade practices as approved at the St. Louis hearing also indicate their approval and a limited number did so.

It was stated for the information of those present that the commissioner at St. Louis had stated that it would be from three to six months before the Federal Trade Commission would take final action one way or the other. Another statement made favorable to the proposed code or to any code was that after it had been acted upon favorably by the commission no prosecuting attorney state or national would be likely to object to or take action against discussions of matters contained in the code.

The proposed meeting of the Dixie jobbers was not held and there was no session on the afternoon of the second day. The Dixie jobbers preferred not to discuss their organization or its methods at that time, stating they had a number of jobbers awaiting them in their own quarters in the hotel. The jobbers did not seem to be in a buying mood so far as future purchases of gasoline or other products was to be considered. Even the equipment exhibitors stated they did little business but hoped sales would result later from the opportunity given to display their wares to actual users. The total number of registrants was not announced but it was estimated roughly at possibly 250, including exhibitors, local oil men and out of town visitors.

CALIFORNIA PRICES ARE CUT 2 CENTS

LOS ANGELES, Calif., Feb. 18.—The past week witnessed another avalanche of price cutting in California. The tank wagon price of gasoline was reduced 2 cents per gallon bringing current quotations down to 14½ cents per gallon in Los Angeles territory. This reduction of 2 cents in tank wagon price also resulted in a cut of 2 cents in the posted retail price of gasoline which the major companies have been maintaining in the face of intense competition. Standard, Union, Shell, Associated, General, Petroleum, Richfield, and other large marketers immediately followed the action of The Texas Company in its initial cut. Gasoline at company-owned stations has been reduced from 20½ cents to 18½ cents in Los Angeles territory with similar reductions effective in other districts. Retail quotations of the major companies are still 2 cents in excess of those being quoted by independent resellers. Representatives of the various independent resellers and service station operators have been making a determined effort to effect stabilized prices but nothing definite has been accomplished up to the present time and every indication points to the continuance of an unsettled market.

The San Francisco Bay region which had maintained 21 cents dropped to 19 cents while members of the Retail Service Station Dealers Association who have been selling at 18 cents per gallon cut to 17 cents and garages affiliated with the garage and property owners association went down from 17 to 15 cents per gallon. The city of Fresno in the San Joaquin Valley has shown a variety of prices recently. One of the Standard's resellers has been selling gasoline at 10 cents the lowest mark motorists have ever paid in that section. Other independent stations are maintaining posted prices ranging from 12 to 14 cents while bootleg gasoline can be had at 9½ cents. San Diego, in southern California, was also caught in the net of a keen price war this week and prices show a range of from 14 to 20 cents. The usual state road tax of 3 cents is included in all of the above figures.

STOCK DISTRIBUTION TO HUMBLE EMPLOYES

HOUSTON, Tex., Feb. 16.—Stock of the Humble Oil & Refining Co. representing a present market value of around $4,000,000, was distributed to 680 employes of that company and the Humble Pipe Line Co. in the fields and offices over Texas, Louisiana, Arkansas and Oklahoma.

The employes' stock purchase plan, under which 43,101 shares are being distributed, is the fifth, the first being offered in 1917. The present plan, which matured on December 31, 1928, was opened in October, 1924. Employes with one year's service were permitted to make monthly payments, not exceeding 20 per cent of their salary, and for every dollar paid in by the employes the company paid in 50 cents. The funds were invested in stock at approximately the market price. During the four years the stock purchased has increased in value to such an extent that, with the company contributions, employes are receiving stock representing on the present market a value three times the amount paid by the employes.

Refinery Supply and Demand in 1929

Important Changes Will Take Place in Relative Importance of Several Refining Areas. Well-Regulated Operations Necessary

From Statistical Department, Humble Oil & Refining Co.

Much study has been given to the conservation of crude oil over the past year and the oil industry, governmental authorities, and the public apparently have come to recognize the necessity for conservation if our business is to go along in an orderly way and the public assured of adequate supply of gasoline and other products at reasonable prices looking to the future. In order for this broad and important program to be effective and its purposes accomplished, similar principles must be applied in the manufacturing and distributing end of the business. This involves regulation of refinery operations all over the United States and in adjacent foreign countries. Any limitations essential to carrying out an economic and rational program should be based on the cost of transportation of crude and products, as well as manufacturing and distributing costs and market demand, and also urge of various producing districts to market crude. Any sound program must adhere as closely as is practically possible to the most economic one. The study of the problem seems to be simplified by considering crude and products separately; first, from an economic standpoint, and then on a practical basis, which combines the economic phases of the question with the existing conditions in the various producing, marketing and refining districts.

In approaching the question, it seems best to consider only the three major divisions of the United States, i. e., Gulf and Atlantic Seaboard, Interior, and California. It would obviously involve a long and tedious discussion, after a study of transportation costs, to comment on the economies of supplying gasoline and other products to the interior states from various refineries located in the oil fields, or at large consuming points in the interior supplied by pipe line, or from seaboard refineries. This is an important question and one that should receive consideration of the industry, but is secondary to similar questions relating to operations in the three major subdivisions of the United States and adjacent foreign refineries.

As we review 1928 operations along the above lines, we find that the most significant violation of economic principles with respect to movement of products relates to the movement of gasoline Eastward through the Canal from California, and shipments by Interior refineries to the Seaboard. California moved 22,000,000 bbls. of gasoline through the Canal, 16,500,000 bbls. to domestic consumption and 5,500,000 bbls. export. This movement was carried out at a transportation cost by pipe line and boat of approximately 1 cent a gallon in excess of the cost at which the same quantity might have been moved to market by United States, Gulf and Atlantic Seaboard refineries running on domestic crude. Interior refineries shipped about 4,000,000 bbls. of gasoline to the Seaboard by rail at a transportation cost, including car rental and handling, of approximately 1¾ cents a gallon, whereas the service might have been performed by pipe line at an average cost of approximately one-half cent a gallon. From a strictly economic standpoint, neither of these movements should have taken place, but from a practical standpoint there is little cause for complaint in 1928. The Gulf and Atlantic Seaboard refineries were running to produce the maximum of gasoline, and under these conditions it is natural that gasoline should have been shipped from California and the Interior.

California Fuel Oil

California moved 7,500,000 bbls of fuel oil through the Canal. This oil was moved to market at a transportation cost of approximately 50 cents a barrel in excess of the cost of moving a similar quantity from the Gulf. With fuel oil selling at less than $1 per barrel on the Atlantic Seaboard, and 75 cents to 80 cents at the Gulf, it is obvious that fuel moved through the Canal from California netted back less than 35 cents a barrel. Fuel oil is worth $1.50 or more per barrel based on the cost of coal, in California and it would seem that even in face of very substantial California oil reserves that economic considerations would not justify the eastward movemet of fuel oil (or crude for that matter) under any conditions.

Approximately 231,000 bbls. daily of Oklahoma and Kansas crude moved to the Seaboard in 1928, and approximately 90,000 bbls. of Texas oil moved north of the Red River. At first glance it would appear that each movement is unsound economically. The natural outlet for Oklahoma and Kansas crude is the interior of the United States. These states are supplying about 540,000 bbls. of crude daily to interior refineries. Oklahoma and Kansas crudes yield a high percentage of gasoline—approximately 50 per cent—so that they are supplying 270,000 bbls. daily, or 95,000,000 bbls. a year of gasoline to the interior. The total gasoline consumption of the interior of the United States in 1928 was 180,000,000 bbls., or about 46 per cent of the total United States consumption. With this important market at their door, and with these states already supplying more than one-half of the whole interior of the United States, and their importance as a source of supplying crude and products for the interior of the United States increasing year by year, it is apparent from an economic standpoint that these states should supply the interior rather than the seaboard. The tendency should be to gradually reduce seaboard shipments and in fact we may ultimately be pumping oil north by pipe lines that are now moving oil south.

Crude Oil Movement

Viewing this question from a practical standpoint, the objection to the movement of Oklahoma and Kansas crude to the seaboard is not serious so far as transportation costs are concerned. The crude is moved through pipe lines that were constructed years ago and which would be idle to the extent that the movement were reduced. Therefore, transportation costs are low compared to the distance the oil is moved. In order to move south however, this crude must meet West Texas and South American crudes on an equal price basis. It enjoys a distinct advantage over these other crudes for north bound movement, and thus this practical objection to the movement is evident. Several additional pipe lines from West Texas to the Gulf are nearing completion and when finished the total pipe line capacity of West Texas, Oklahoma and Kansas will exceed the seaboard refineries need for light crude. Under these circumstances, it would seem that this movement should be reduced somewhat—perhaps 20,000 to 25,000 bbls. daily—in 1929.

Approximately 60,000 bbls. out of a total of 90,000 bbls. of Texas oil which is moving north is moved by pipe line and 30,000 bbls. is moved by tank car. Perhaps today, with a surplus of crude in Oklahoma and Kansas, this movement is uneconomic, although final answer to this question would involve consideration of the ultimate reserves of oil in the three states as compared to the economic potential market of each. This phase of the question is too involved to debate in this memorandum. It is obvious that any rail movement of Texas oil, particularly north bound shipments, is not in keeping with economic principles.

The estimate of 1929 operations shown in the first statement attached, has been prepared after considering all data available to us which is pertinent and represents our views of the most rational and practical solution of the problem confronting the industry, following as far as seems feasible to us purely economic principles, modified by such practical considerations as seemed essential to satisfactorily meeting the market demand for products and providing a reasonable outlet for crude from the various producing areas.

Domestic Increase Less

We have estimated that the total United States gasoline demand will be approximately 35,000,000 bbls. more than in 1928. The increase in 1928 over 1927 was 38,000,000 bbls; 1927 over 1926, 37,000,000 bbls. We feel that the estimate of 35,000,000 bbls. increase in consumption is probably on the high side in view of the fact that domestic consumption seems to be growing at a slightly decreasing rate from year to year, and that we estimate an appreciable increase in gasoline production in Venezuela and Dutch West Indies, which serve the same markets as United States refineries. We believe that we face a more difficult problem in estimating 1929 operations with assurance of reasonable accuracy than we had a year ago in estimating 1928 operations, due primarily to the fact that we do not appear to have as many physical limitations to guide refinery operations in 1929 as we had in 1928.

We believe that the program as suggested is entirely practical and would meet the situation with slight modification, provided producing and refining operations are stabilized as they reasonably should be. Without earnest effort on the part of each district to adhere to a definite economic program in producing, refining, and marketing operations, our estimates may be very wide of the mark.

Cracked Gasoline

We have estimated that 25,000,000 bbls. more cracked gasoline will be produced in 1929 than in 1928. Cracking has been at the rate of 140,000,000 bbls. annually within recent months and it seems easily possible to make the 165,000,000 bbls. of cracked gasoline that we have estimated; in fact we believe it will be possible to make more than this; but, also, that less will be made unless we have reasonably good crude and gasoline prices. The estimate only shows moderate increase in crude runs and yet adequate crude is indicated to meet all demands based on our assumption that the industry sold more fuel oil this year than its well-being justified and that some surplus will be available from Venezuela.

We have estimated that the Gulf and Atlantic Seaboard refineries will make and market approximately 8,000,000 bbls. less fuel than in 1928, yielding this part of their market, plus any natural increase, to Venezuela and Dutch West Indies. Since these districts will have adequate cracking and other facilities so as to permit an excess production of gasoline, we have assumed that they will regain a part of the market that they lost in 1928 to the interior and to California. We believe that economic considerations justify a reduction in movement of gasoline from both California and the interior plants into territory served by the Gulf and Atlantic Seaboard refineries, and that some reduction will gradually be brought about beginning this year.

Interior Refineries

Our figures are determined largely by estimates on gasoline demand upon interior refineries. We believe that they will lose some business that they had in 1928 to the Gulf and Atlantic Seaboard plants. It seems apparent that they have spread beyond their economic limits based on transportation costs and we expect to see less movement to the seaboard for export, and also expect the interior plants to yield part of their domestic market, particularly to Atlantic seaboard refineries. Much interior gasoline is moving uneconomically. For instance, Oklahoma and Kansas refineries are shipping more than one-half their output of gasoline into territory that could be reached by St. Louis and Chicago refineries at savings of from 1½ cents to 2 cents a gallon in freight as compared to interior plants. This movement is clearly uneconomic in view of the fact that crude oil can be moved from Oklahoma and Kansas to St. Louis and Chicago at a pipe line cost of one-half cent to three-fourths cent a gallon.

Interior plants are moving gasoline as far east as Pennsylvania at freight costs upwards of 3 cents a gallon. Some of the territory into which these plants are

TABLE 1—ESTIMATED REFINERY OPERATIONS FOR 1929, BASED ON BUREAU OF MINES REPORTS
Estimated 1929 Operations to Supply Gasoline

	Refinery crude runs		Straightrun gasoline		Cracked gasoline		Natural gasoline		Total gasoline output		Gas and fuel oil output	
	Domestic (bbls.)	Foreign (bbls.)	Bbls.	% on crude	Bbls.	% on crude	Bbls.	% on crude	Bbls.	% on crude	Bbls.	% on crude
Gulf and Atlantic seaboard:												
Total	290,865,000	80,020,000	71,169,000	19.19	70,370,000	18.97	12,717,000	3.43	154,256,000	41.59	159,600,000	43.03
Average daily	797,000	219,000	195,000		193,000		35,000		423,000		437,000	
Interior United States:												
Total	349,503,000	.....	101,885,000	29.15	70,930,000	20.29	12,499,000	3.58	185,314,000	53.02	111,345,000	31.86
Average daily	958,000	.....	279,000		194,000		34,000		507,000		305,000	
California:												
Total	210,000,000	.....	50,390,000	24.00	7,000,000	3.33	13,170,000	6.27	70,560,000	33.60	128,299,000	61.38
Average daily	575,000	.....	138,000		19,000		36,000		193,000		353,000	
Grand total United States	850,368,000	80,020,000	223,444,000	24.02	148,300,000	15.94	38,386,000	4.13	410,130,000	44.08	399,844,000	42.98
Average daily	2,330,000	219,000	612,000		406,000		105,000		1,123,000		1,095,000	

shipping can be more economically reached by the Atlantic seaboard plants. The indications are that the interior plants can easily make more gasoline than they can sell, and at the same time reduce fuel production approximately 11,000,000 bbls. It seems reasonable to suppose that interior refiners will actually sell less fuel oil in 1929 than in 1928, because the urge to sell fuel in 1928 has brought about unreasonably low net backs on fuel oil to interior refiners. We believe that they could sell 111,000,000 bbls. of fuel oil for more money than they could sell 122,000,000 bbls. and, therefore, have indicated that lower crude runs, with less fuel production, is the desirable operation. Without control of operations, they may make and sell as much or more fuel than in 1928 at as low or lower prices. Should this come about it would probably be accompanied by increased crude runs and less cracking.

We estimate approximately the same amount of crude to be run in California in 1929 as in 1928, and that their increase in gasoline made will be approximately 4,000,000 bbls. This is based on the assumption that they will ship 2,000,000 bbls. less gasoline through the Canal, or 20,000,000 bbls., instead of 22,000,000 bbls. as in 1928; and that their increase in demand would relate only to their local consumption, plus western exports. Without control of operations, their eastbound shipments might exceed 1928, but in the face of changed conditions in the Gulf and Atlantic seaboard, plus additional competition from Venezuela, this could only take place with low gasoline prices. We have shown no increase in cracked gasoline production in California, as this does not appear to be necessary to make the gasoline indicated. We believe they could make several million barrels additional cracked gasoline. California accumulated approximately 8,000,000 bbls. of fuel oil this year and shipped 7,500,000 bbls. eastward through the Canal. The statement contemplates production of 5,000,000 bbls. less fuel in 1929, or 3,000,000 bbls. more than they marketed in 1928, including eastbound shipments. We believe that they will ship less fuel East than last year, and even this program would show some accumulation of fuel oil.

Foreign Refineries

In the preparation of this memorandum we have been handicapped by the lack of considerable information which would be helpful. We lack detailed data of refinery operations in adjacent foreign refineries for 1927 and 1928 and are not accurately informed as to their program for 1929. Obviously, their operations affect us as their products are all either exported to America, or compete with American products in export trade. There will unquestionably be an outlet for a large quantity of Venezuelan crude. The best figures we have indicate that approximately 90,000,000 bbls. were refined in 1928.

The pressure of this large quantity of Venezuelan crude on the market unquestionably accounts for the ridiculously low fuel prices that have existed along the seaboard for more than a year. Had they marketed only 10 per cent to 20 per cent less, we believe that fuel prices would have been 50 per cent better than they were. Due to reduction of fuel crudes in the United States and a greater percentage of domestic crude converted into gasoline by cracking, United States refineries are each year producing less fuel oil from domestic crude, thus naturally providing increased room in the market for Venezuelan crude, which is essentially a fuel crude. Economic considerations would indicate that Venezuela should carefully analyze the United States situation and adjust their operations so as to fit into the market in a logical way. Fuel produced at the average United States refinery from domestic crude is a by-product and must be sold regardless of price. After all by-product fuel reaching the Gulf and eastern seaboard markets is sold, only two-thirds the fuel market is supplied, so that there is a definite place for a large quantity of fuel crude. It is believed that 100,000,000 to 110,000,000 bbls. of Venezuelan crude can be run in 1929 without over producing fuel oil, and that the fuel market is practically in the hands of the Venezuelan producer, who can make it what he will, depending on whether he is willing to supply the market that is naturally left to him, or to attempt the impossible of selling more than the market can take. He cannot hope under any conditions to displace by-product fuel from United States refineries.

While the attached statements relate only to crude, gasoline, gas and fuel oil, in preparing them consideration has been given to other products. We have shown a slightly lower yield of straightrun gasoline at interior refineries, due partly to our estimated substitution of West Texas crude, yielding less gasoline, for Oklahoma and North Texas crudes run in 1928, and also due to the indications that in order to supply the country's demand it will be necessary for all refineries running sweet crude to reduce gasoline yields slightly so as to produce the kerosene needed. Some slight reductions in the indicated gasoline yields of Gulf and Atlantic seaboard refineries have been made for the same reason and a higher yield of straightrun gasoline is indicated in California, because of an increase in percentage of light crude that it appears these refineries will run.

We have assumed that in each district the production of gasoline, gas and fuel oil will balance demand with no increase or decrease in stocks, except in California, where some accumulation of fuel oil is indicated, on the assumption that less fuel will be shipped through the Canal.

DRILLING BEING RESUMED IN DEEP TEST AT MEXIA TO TEST TRINITY

By Neil Williams

CORSICANA, Tex., Feb. 18.—Of particular interest in the East Central Texas district the past week was the resuming of drilling in C. F. Lytle and associates' No. 1 Thompson at Mexia. The test, which Saturday was drilling in hard shale at 6,011 feet, is to be the first real Trinity sand test in that area.

The test was drilled to a total depth of 6,002 feet last September but at that depth was shut down until arrangements could be made to deepen it. At that time it was in a hard sandy lime believed to be the Glen Rose overlying the Trinity sand. It now will be carried on down to test the Trinity.

On the Boggy Creek salt dome on the Anderson and Cherokee County line, Humble Oil & Refining Co.'s No. 3 Lizzie Smith Monday had set liner and was preparing to swab. The well was showing a little oil and gas from sand at a total depth of 3,723 feet. Humble's No. 1-B Jones on the south side of the dome is drilling shale and boulders at 1,802 feet. No. 4 Earle & Ragsdale on the Cherokee County side is at 1,500 feet where 1,494 feet of 10-inch surface casing has been run. No. 1 Neches River is drilling shale and boulders at 832 feet. Offsetting this test, No. 1-B Elliott & Clark has completed a derrick and is awaiting a rig.

Two new tests are starting up in the southwest etxension district of the field, these being No. 1 Gauger and No. 1 Purvy. Both are rigging up.

On the Keechi Dome in Anderson County, J. S. Cosden and associates' No. 2 Douglass still is fishing stuck drill stem with the bottom of the hole at 3,562 feet. Pure Oil Co.'s No. 2 Willie Bruce on the Bethel Dome, Anderson County, has drilled to 4,306 feet in hard shale but is shut down temporarily to put on heavier equipment.

The latter company has abandoned its No. 1 Neils in Van Zandt. It was in shale at 1,125 feet.

In Milam County, Milch & Clark bailed their No. 1 W. T. Johnson to test a formation at 1,954 feet. The well made between 5 and 6 bbls. of oil and was shut down. Bonwell & Hill's No. 1 Boohn, Milam County, has been rigged up for a 2,500-foot test. Hicks & Deering have spudded in on their No. 1 Prince, Navarro County.

Caruth & Stewart's No. 1 Flowers, Falls County, is drilling chalk at 705 feet. Gruver & Stiles' No. 1 B. H. Stiles is coring deeper in lime at 1,142 feet after testing salt water in the Georgetown at 1,130-40 feet.

Foster and associates' No. 1 Richards' Henderson County, has drilled to 3,465 feet in sandy shale but has been shut down temporarily. Henderson Petroleum Co.'s No. 1 Cade, Henderson County, is drilling shale at 960 feet. Ballard Oil Co.'s No. 1 Tubbs, Leon County, is drilling sandy shale at 1,731 feet. Patty and associates' No. 1 Randall, Leon County, is standing with 10-inch casing cemented at 285 feet. It will test an oil showing sand at 298-302 feet.

Average Production

Average daily production of the pools of East Central Texas during the week ended February 16, follows:

Boggy Creek	3,325
Cedar Creek	210
Currie	471
Mexia	5,986
Minerva	720
Nigger Creek	385
Powell	9,149
Richland	415
Thrall	33
Wortham	1,395
Total	22,089
Total last week	21,556
Difference	533

WEST TEXAS FIELDS

(Continued from Page 40)

the pay at 1,160 feet, was drilled to a total depth of 1,362 feet and had an initial production of 3,504 bbls. in 45 minutes. California's No. 2 Smith, Lease No. 1, located in Section 21, Block 94, topped the lime at 1,315 feet, topped the pay at 1,370 feet, was drilled to a total depth of 1,490 feet and had an initial production of 134 bbls. hourly.

Sutton County

Nantz and others' No. 1 Allison, in Section 29, Block B, was dry and abandoned at 120 feet.

Taylor County

Burnham and others' No. 1 Amyx was dry and abandoned at 2,327 feet.

Reeves County

Doctor Kitsos and others' No. 1 Kloh, 330 feet from south and east lines of Section 5, Block 54, Township 7s, T.&P. Survey, was dry and abandoned at 1,250 feet.

Terry County

Superior Oil Co.'s No. 1 Brownfield, 990 feet south and 330 feet west of Section 7, Block 1-A, E.L.R.R. Survey, was dry and abandoned at 5,080 feet.

Winkler County

Atlantic Oil Producing Co.'s No. 7 Hendricks-E was drilled to a total depth of 2,745 feet, plugged back to 2,575 feet, topped the pay at 2,500 feet and flowed 5,000 bbls. Prairie Oil & Gas Co.'s No. 5 Cowden made 995 bbls. at 2,829-83 feet. Magnolia Petroleum Co.'s No. 1 Scarborough, 2,310 feet south and 990 feet east of Section 1, Block C-22, topped the lime at 2,770 feet, topped the salt at 1,122 feet was drilled to a total depth of 3,030 feet and had an initial production of 200 bbls. daily. Pure Oil Co.'s No. 11 Hendricks-C, located 1,650 feet south and 2,310 feet east of Section 45, Block 26, topped the lime at 2,302 feet, topped the pay at 2,667 feet, was drilled to a total depth of 2,734 feet and had an initial production of 1,065 bbls. daily, 70 per cent water. Southern Crude Oil Purchasing Co.'s No. 5 Hendricks T-88-D, located 440 feet south and 330 feet east of Section 4, Block B-12, topped the lime at 2,510 feet, topped the pay at 2,770 feet, was drilled to a total depth of 2,914 feet and made 24,000 bbls. daily, 50 per cent b.s. and water. Its No. 5 Hendricks, T-88-K, located 1,320 feet north and 990 feet east of Section 41, Block 26, made 155 bbls. hourly at 2,788 feet. Its No. 3 Hendricks T-88-L, located 1,650 feet north and 1,320 feet east of Section 4, Block B-12, topped the lime at 2,596 feet, topped the pay at 2,940 feet, was drilled to a total depth of 3,036 feet, plugged back to 3,010 feet and had an initial production of 650 bbls. daily pipe line oil. Its No. 3 T-89-C, located 2,310 feet south and east of Section 35, Block B-5, made 255 bbls. daily, 16 per cent water at 2,885-3,010 feet. Its No. 2 T-89-E Hendricks, located 1,320 feet north and 2,310 feet east of Section 40, Block B-5, made 80 bbls. daily at 2,543-55 feet. Its No. 1 Hendricks T-89-I, located 495 feet north and 2,310 feet east, Section 10, Block B-12, had an initial production of 1,400 bbls. fluid, 60 per cent water at 2,101-45 feet. Its No. 1 Hendricks T-89-J made 100 bbls. oil, 24 per cent water at 2,870-2,920 feet. Marland Oil Co.'s No. 2 Morton, 990 feet north and 330 feet west of SE cor., Section 27, Block B-12, topped the pay at 2,840 feet, was drilled to a total depth of 3,006 feet and had an initial production of 145 bbls. daily, 17 per cent water.

PECOS COUNTY
YATES POOL
Week Ended February 12

Company, lease—	Wells	Prod.
California Co.:		
Yates—Lease 1	17	6,995
Smith—Lease 1, Sec. 27	3	362
Smith—Lease 1, Sec. 23	6	1,060
Smith—Lease 1, Sec. 21	2	309
Smith—Lease 2	2	161
Smith—Lease 3	12	1,447
Tippett—Lease 1	..	42
Cosby Drilling Co.:		
M. A. Smith	1	379
Gulf Prod. Co.:		
All leases	32	10,610
Humble Oil & Refining Co.:		
M. A. Smith	10	1,417
Smith-B	5	784
Kirby Petroleum Co.:		
Tippett	2	203
Kirby Petroleum and Edson:		
Tippett	1	60
Marland Oil Co.:		
Yates-A	8	921
Matador Oil Co.:		
Smith	2	849
Mazda & Savoy:		
Smith	3	664
McMan Oil & Gas:		
Smith-A	1	844
Smith-B	4	822
Smith-C	4	720
Tippett	3	226
Richardson	1	69
McMan and Marland:		
Yates	16	3,705
Mid-Kansas and Transcon.:		
Yates-A	23	12,316
Yates-B	26	4,464
Yates-C	11	5,654
Yates-D	6	6,488
Yates-E	1	94
Yates-F	4	684
Yates-G	4	1,033
Yates-H	7	5,163
Smith	3	803
Smith-Taylor	18	3,111
A. W. Hawse:		
Pecos River Bed	7	750
Pecos Valley Oil Co.:		
Fee, Sec. 22, Blk 16	1	76
Phillips Petroleum Co.:		
Smith	1	75
Red Bank Oil Co.:		
Smith	5	524
Shell Petroleum Co.:		
Tippett	11	1,911
Smith	9	774
Smith-B	1	667
Smith-D	3	463
Smith-E	1	34
Simms Oil Co.:		
Smith	7	4,865
Skelly Oil Co.:		
Tippett	1	80
Texon Oil & Land:		
Yates	2	....
Grand total Yates Field	287	82,678

DAILY AVERAGE PRODUCTION BY LEASES
WINKLER COUNTY
Week Ended February 12

Company, farm, sec., blk.—	Wells	Prod.
Amerada Petroleum Corp.:		
Cowden, 3, B-12	3	1,091
Atlantic O. P. Co.:		
Hendricks-A, 34, B-5	8	1,321
Hendricks-B, 44, 26	3	509
Hendricks-D, 29, B-5	8	2,443
Hendricks-E, 41, B-5	6	3,899
Hendricks-G, 40, 26	7	2,115
Hendricks-H, 28, B-5	1	31
Atlantic and Collett:		
Hendricks-F, 40, 26	13	2,105
Bankers Prod. Co.:		
Hendricks, 30, B-5	1	7
California Co.:		
Hendricks, 29, B-5	8	1,474
Cranfill & Reynolds:		
Hendricks-A, 28, B-5	2	179
Hendricks-B, 35, B-5	1	111
Hendricks-C, 33, 26	2	298
Hendricks-D, 33, 26	1	....
Hendricks-E, 33, 26	2	610
Cranfill and Texon:		
Hutchings, 47, 26	1	85
Culberson Brothers:		
Hendricks, 40, B-5	1	109
Eastland Oil Co.:		
Hendricks, 33, B-5	2	444
Hendricks-B, 35, B-5	1	252
Gulf Prod. Co.:		
Hendricks-A, 34, B-5	13	4,142
Hendricks-B, 45, 26	11	8,341
Hendricks-C, 40, B-5	6	2,432
Hendricks, 44, 26	1	354
Cowden, 3, B-12	1	992
Humble Oil & Refining Co.:		
Hendricks-A, 34, B-5	17	5,955
Hendricks-B, 29, B-5	6	1,186
Hendricks-C, 32, 26	8	873
Hendricks-D, 47, 26	6	927
Hendricks-C, 10, B-12	2	1,753

Independent Oil & Gas:		
Hendricks-A, 34, B-5	8	1,586
Howe-B, 44, 26	2	111
McCabe, 36, B-5	2	354
Hendricks, 42, B-5	1	21
Vardeman-B, 41, B-5	6	1,129
Magnolia Petroleum Co.:		
Hendricks, 29, B-5	8	997
Marland Oil Co.:		
Hendricks, 33, 26	4	1,257
Hendricks-A, 29, 26	2	201
Hendricks-B, 34, 26	1	284
May Prod. Co.:		
Hendricks, 34, 26	1	21
American Maracaibo Co.:		
Hendricks-A, 28, B-5	1	204
Hendricks-B, 28, B-5	1	72
Mining & Eng. Co.:		
Hendricks, 10, B-22	1	125
Murchison & Cranfill:		
Hendricks-A, 35, B-5	3	1,091
Hendricks-B, 35, B-5	3	1,152
Hendricks-C, 35, B-5	1	35
Hendricks-H, 33, 26	1	1,965
Hendricks-I, 47, 26	1	1,221
Prairie Oil & Gas:		
Hendricks, 40, 26	6	2,490
Cowden, 3, B-12	4	3,156
Pure Oil Co.:		
Hendricks-A, 41, B-5	11	2,459
Hendricks-B, 34, B-5	13	4,362
Hendricks-C, 45, 6	14	10,762
Republic Prod. Co.:		
Hendricks-A, 45, 26	6	2,790
Hendricks-B, 41, B-5	5	1,991
Hendricks-C, 42, B-5	5	279
Shell Petroleum Co.:		
Hendricks-A, 45, 26	6	2,247
Hendricks-B, 28, B-5	5	1,919
Hendricks-C, 29, B-5	8	3,512
Hendricks-D, 41, B-5	6	1,231
Hendricks-E, 49, B-5	3	1,323
Hendricks-F, 46, 26	8	5,304
Hendricks-G, 39, 26	1	89
Shell-The Texas Company:		
Cowden-A, 3, B-12	6	1,591
Hendricks, 45, 26	6	2,461
Hendricks-A, 29, B-5	11	4,178
Hendricks-B, 40, 26	6	1,042
Hendricks-C, 40, 26	6	3,289
Hendricks-D, 40, 26	6	1,492
Hendricks-E, 40, 26	4	1,085
Skelly Oil Co.:		
Hendricks, 40, 26	12	9,890
Hendricks-B, 39, 26	2	20
Hendricks-C, 39, 26	1	1,005
Southern Crude O. P. Co.:		
T-67 Hendricks-A, 42, B-5	3	182
T-67 Hendricks-3-A, 4, B-12	4	437
T-67 Hendricks-B, 44, 26	5	729
T-67 Hendricks-3-B, 33, 26	5	630
T-67 Hendricks-C, 33, B-5	5	1,066
T-67 Hendricks-2-D, 28, 26	4	741
T-67 Hendricks-E, 42, B-5	4	123
T-67 Hendricks-F, 33, B-5	4	698
T-68 Hendricks-3-A, 33, B-5	3	216
T-68 Hendricks-B, 46, 26	2	170
T-88 Hendricks-A, 44, 26	6	925
T-88 Hendricks-B, 4, B-12	3	1,175
T-88 Hendricks-C, 29, B-5	7	949
T-88 Hendricks-D, 4, B-12	4	2,354
T-88 Hendricks-H, 28, B-5	6	1,066
T-88 Hendricks-I, 30, B-5	7	1,208
T-88 Hendricks-J, 30, B-5	5	1,095
T-88 Hendricks-K, 41, 26	4	949
T-88 Hendricks-L, 4, B-12	3	659
T-88 Hendricks-M, 33, 26	29	15,023
T-88 Hendricks-N, 28, 26	5	1,403
T-88 Hendricks-O, 28, 26	2	738
T-88 Hendricks-P, 28, 26	1	226
T-88 Hendricks-Q, 27, 26	1	343
T-88 Hendricks-R, 27, 26	2	819
T-88 Hendricks-S, 34, 26	3	1,042
T-88 Hendricks-T, 34, 26	6	906
T-88 Hendricks-U, 41, 26	7	1,314
T-88 Hendricks-V, 29, 26	1	113
T-88 Hendricks-W, 5, B-12	1	332
T-89 Hendricks-A, 35, B-5	3	246
T-89 Hendricks-B, 35, B-5	2	286
T-89 Hendricks-C, 35, B-5	1	180
T-89 Hendricks-E, 40, B-5	2	90
T-89 Hendricks-F, 40, B-5	1	116
T-89 Hendricks-H, 46, 26	1	40
T-89 Hendricks-I, 1, 1	1	446
T-89 Hendricks-J, 1, 1	1	504
T-90 Hutchings, 47, 26	1	92
T-264 Hendricks, 5, B-12	1	off
Texon Oil & Land Co.:		
Hendricks-A, 41, B-5	6	870
Hendricks-B, 45, B-5	5	986
Winkler O. P. Co.:		
Hendricks, 33, 26	1	86
Grand total Hendricks Pool	518	167,404
LECK AREA		
Atlantic, Kesslar & Logan:		
Leck, 3, 74	2	451
Amerada Petroleum Corp.:		
Leck, 3, 74	2	279
Empire Gas & Fuel Co.:		
Daugherty, 3, 74	2	429
Magnolia Petroleum Co.:		
Scarborough, 1, C-22	1	127
Shell and Llano Oil:		
Scarborough, 1, C-22	2	85
Shell and Danciger:		
Leck, 3, 74	2	388
Total Leck area	11	1,759
O'BRIEN POOL		
Marland Oil Co.:		
Tobe Morton, 10, B-12	1	189
Wentz Oil Corp.:		
Tobe Morton, 10, B-12	1	301
Richardson et al:		
Stockton, 50, F	1	346
Total O'Brien Pool	3	836
Grand total Winkler Co.	532	169,999

Hendricks Potential Drops

Since proration went into effect in Hendricks the pool showed its greatest drop in potential production when the proration gauges for the period of February 15 to March 1 showed a total potential of 2,490,338 bbls., a decrease of 107,845 bbls. Sixty-four wells were gauged for the new period and the allowance per unit is 374 bbls. and the allowance for potential is .035136.

The umpire lists 234 units on production and 528 wells. This is an increase of 21 wells and a gain of 12 units. The decline in potential is the greatest the field has shown at any one period and brings the total loss in poetntial since the first of the year close to 155,000 bbls. The following table shows the potential and allowed production by companies.

WINKLER COUNTY POTENTIAL AND ALLOWED RUNS BY COMPANIES
February 15 to March 1, 1929

Company—	Wells	Units	Potential Prod.	Allowed Prod.
Amerada Petroleum Corp.	5	4	13,083	1,955
American Maracaibo Co.	2	⅝	3,344	397
Atlantic Oil Producing Co.	35	14	185,215	11,742
Atlantic and Collett	13	4	47,867	3,179
Bankers Production Corp.	1	⅛	1,748	109
Cranfill & Reynolds	8	2½	10,754	1,311
California Company	8	2	16,856	1,340
Eastland Oil Co.	3	2	2,377	830
Culbertson Brothers	1	¼	802	121
Empire Gas & Fuel Co.	2	1	4,845	544
Gulf Production Co.	33	15	299,935	16,149
Humble Oil & Refining Co.	37	17	166,769	12,219
Independent Oil & Gas Co.	18	8½	30,913	4,265
Marland Production Co.	9	4	22,588	2,289
May Production Co.	1	⅛	0	47
Mining & Engineering	1	¼	239	101
Magnolia Petroleum Co.	9	3	5,129	1,301
Murchison & Cranfill	8	2¼	18,084	1,478
Murchison & Lee	1	⅓	2,693	282
Republic Production Co.	16	5½	70,992	4,488
Richardson Kelsey	1	1	1,733	435
Prairie Oil & Gas Co.	11	5	142,656	6,882
Pure Oil Co.	38	12	317,289	15,636
Skelly Oil Co.	15	7	225,512	10,542
Southern Crude Oil Purchasing Co.	156	80⅜	503,687	47,894
Shell Petroleum Corp.	39	18	166,223	12,570
Shell and The Texas Company	44	16	203,315	13,128
Texon Oil & Land Co.	10	4	19,557	2,182
Warner-Quinlan Co.	1	1	4,200	522
Wentz Oil Corp.	1	1	1,863	439
Winkler Oil Producing Corp.	1	¼	70	95
Grand total	528	233	2,490,338	174,472

ENDEAVOR TO INTEREST REFINERS IN DUNDEE OIL

(Continued from Page 138)

ing. The Dundee potential production is estimated at around 30,000 bbls. daily although due to the pipe line curtailment the production is now less than 2,000 bbls. daily.

Development of a process of refining a good grade of gasoline from the Dundee crude of the Muskegon Field is the real problem facing the operators here at the present time, according to Homer H. Johnson, president of the Johnson Oil Refining Co., which has an 8,000-bbl. refining plant at Cleveland, Okla., and main offices at Chicago.

Mr. Johnson, whose company is heavily interested in the Muskegon Field in an operating way, spoke to the producers at their meeting here this week. He declared that the kerosene refined from the Dundee crude was of the best quality but that the gasoline was lacking in antiknock qualities.

In the preliminary test made by the Johnson company at their refinery it was discovered that the Dundee crude is 33 per cent gasoline and 60.6 gravity and produced 17.5 per cent kerosene and 45.6 gravity.

Mr. Johnson pointed out that in view of the differential in freight rate between Muskegon and nearby refining points as compared with the rates from Group 3, including Oklahoma, a price of nothing at the wells could be quoted and still a profit of about 40 to 50 cents a barrel could be made on the freight rates alone.

Rapidly increasing production of the Muskegon Field as well as the difficulty in handling the Dundee crude oil was one of the principal factors in bringing about the price cut, in the opinion of Mr. Johnson.

C. W. CAHOON ENDS LONG SERVICE IN INDUSTRY

(Continued from Page 138)

then plans a trip to the West, probably California.

Mr. Cahoon entered the petroleum industry September 1, 1888, when he went with the Waters-Pierce Oil Co., at its Galveston office as a sales assistant. He spent approximately 30 years with the Pierce interests, serving in various capacities, and was vice president and general manager when he left the company. He served as general manager for the company during the three-year period in which it was in bankruptcy, about 1909-11. Later he was vice president and general manager of the Pierce-Fordyce Oil Associates, with headquarters in Dallas. Mr. Cahoon became vice president of the Pierce Oil Corp., retaining his connection with the Pierce-Fordyce Oil Associates, and remained in this association until 1918. In that year he acquired an interest in the Carson Petroleum Co. and became vice president and general manager, maintaining headquarters in Chicago.

In 1921 the Cities Service Co. acquired control of Carson Petroleum Co. Mr. Cahoon remained with the organization under Cities Service management, first as vice president and general manager, and later heading the organization.

In 1922, Mr. Cahoon traveled abroad extensively in the interests of Carson Petroleum, Cities Service Export Co., and Petroleum Import & Export Corp. He opened wide distribution of refined products for these companies in England, France, Italy, Germany, Belgium and Finland, and in addition developed considerable business in refined products in South American markets.

OIL SECURITIES SOFT DESPITE MARKET TREND

(Continued from Page 145)

since the second quarter of 1924, when the quarterly payments of 50 cents were discontinued. The present Sinclair company initiated dividends of 50 cents a share quarterly in the third quarter of 1922 and continued them for two years before payment was passed. Both dividends are payable April 15 to stock of record March 15.

H. H. Rogers, president, Exchange National Bank, Tulsa, has been elected a director of Sinclair Consolidated Oil Corp. to fill vacancy caused by the resignation of John H. Markham, Jr., recently elected president of the Petroleum Corp. of America.

Indiana Pipe Line

Report of Indiana Pipe Line Co. for the year ended December 31, 1928, shows net income of $849,112 after taxes and depreciation, equivalent to $8.49 a share (par $50) earned on 100,000 shares of stock. This compares with $985,468 or $9.85 a share in 1927.

Income account for the year 1928 compares as follows:

	1928	1927
Net income	$849,112	$985,468
Dividends	*1,200,000	†2,200,000
Deficit	$350,888	$1,214,532
P. & L. surplus	‡593,244	1,044,133

†Includes special dividend of $15 per share. ‡After deducting $100,000 appropriated to reserves. *Dividends paid during 1928 amounted to $12 a share of which $9.15 per share was paid out of earnings accumulated since March 1, 1913, and $2.85 per share was paid out of earnings accumulated prior to that date.

Sands Petroleum

At a meeting of the Board of Directors of Sands Petroleum Co., held in New York City January 23, a dividend of 10 per cent on the outstanding capital stock of the company was declared, payable February 15 to stockholders of record February 5. F. R. Abbey, of New York, is the president and John H. Harvey, of Tulsa, is secretary and managing director of the company. Sands Petroleum Co. is the owner of production and a large amount of acreage in the Greater Ro[illegible]nole area, and has been quite success[illegible] under the present management.

GEOLOGISTS HEAR TALK ON THE PERMIAN BASI[illegible]

"Permian Basin of the Western M[illegible] Continent District" was the subject [illegible] a talk given last Monday evening at th[illegible] February meeting of the Tulsa Geologic[illegible] Society in the Tulsa Building, Tulsa, [illegible] E. C. Edwards, of San Angelo, Tex., [illegible] geologist for the Superior Oil Corp. Mr. [illegible] Edwards, who has devoted years of st[illegible] to this subject, described the Permi[illegible] sea, in which the rock series of th[illegible] period was laid down, as "just a lit[illegible] over Pennsylvania sea."

Mr. Edwards presented the theory th[illegible] the whole Permian territory of the Unit[illegible] States, whose precise limits have n[illegible] been fixed, was a unit and that variou[illegible] Permian basins, as they are called, w[illegible] sulted from subsidence of the origin[illegible] major sea. The Permian sea of th[illegible] western United States, he said, was [illegible] retreating sea, receding toward the nort[illegible] and west, with the result that thickenin[illegible] of the strata in these directions is fou[illegible]

Plastic and chemical deposits we[illegible] characteristic of the Permian, Mr. Ed[illegible] wards said, and all the material foun[illegible] in it may be placed in one of these tw[illegible] classifications.

Although the term "Permian basin" commonly is employed to designate th[illegible] saucer-like formation of West Texa[illegible] there actually are three basins in th[illegible] Permian area of the Mid-Continent. Th[illegible] northernmost one is in western Kansa[illegible] western Oklahoma and eastern Colorad[illegible] Below this, and overlapping it, is a basi[illegible] covering the Texas Panhandle. The third [illegible] and the one usually meant when the term [illegible] "Permian Basin" is used, is the one [illegible] spreading over West Texas. It is re[illegible] garded as likely that there are other [illegible] basins to the west in Permian regions [illegible] not yet explored. All these basins, ac[illegible] cording to Mr. Edwards' theory, have oc[illegible] curred as a consequence of subsidence o[illegible] the vast sea, which is believed to have [illegible] covered this area following the Pennsyl[illegible] vanian period.

Mr. Edwards' talk was discussed by [illegible] J. L. Ferguson, F. A. Bush, Ira H. Cram [illegible] and L. C. Case, after which the subject [illegible] was thrown open for general discussion [illegible] by the 130 geologists present. Frank A. [illegible] Herald, president of the society, had [illegible] charge of the meeting. He announced [illegible] that 27 new members had been received.

PLACE COLORADO, TEX., IN RANGER RATE GROUP

The Interstate Commerce Commission has ruled that the town of Colorado, Tex., should properly be placed in the Ranger, Tex., rate group in establishing freight rates on petroleum products to eastern destinations.

Colorado was previously in the Ranger group, but the railroads recently published tariff schedules placing it in the San Antonio group, and carrying a rate of 2½ cents per 100 pounds higher than previous rates on shipments of petroleum and products to Louisville.

On request of the Col-Tex Refining Co. of Colorado, the new rates were suspended. The railroads contended that Colorado had previously been in the Ranger group through error and that the higher rate is justified by the traffic, but the commission ordered the rate advance annulled, relying on its decision in the Mid-Continent oil rates case and on the fact that Colorado and Ranger have taken the same rates to St. Louis.

G. E. JOHNSTON DIES

OIL CITY, Pa., Feb. 16.—George E. Johnston, aged 75 years, a pioneer oil man of this section, died Thursday night. Mr. Johnston was born June 14, 1854, in Erie County, and came to Oil City in 1859. Mr. Johnston was a driller and had producing interests of his own in this section and had followed the oil industry all his life.

Heat Will Determine Drilling Depth Limit, Says Director Gould

NORMAN, Okla., Feb. 15.—Heat and not the drilling equipment may be the factor which will determine how far down into the earth wells may be drilled for oil, Dr. Charles N. Gould, director of the Oklahoma Geological Survey, states. The bringing in of the deep field at Oklahoma City and the production found at over 8,500 feet in Texas has caused considerable speculation as to how deep oil may be found and how far down the drill can be sent.

Doctor Gould stated that he was not able to say how far down the oil men would be able to drill, or how deep production might be found, although the question had been asked him many times. Recent articles appearing in some of the oil trade journals indicate that manufacturers of drilling equipment claim that they can build equipment for drilling down 10,000 feet or more. Other investigators believe that it will be possible to equip drilling machinery to drill to great depths at ordinary temperatures, but point out that temperatures increase with depth and that high temperature will make it impossible to drill beyond certain depths.

However, Doctor Gould pointed out, the rate of increase in temperature with depth varies greatly. The highest reported temperature was 210.3 degrees at a depth of 6,500 feet. At 8,300 feet in the deep well in Texas the temperature was only 161 degrees, but the increase was very rapid from 6,500 feet down.

Investigations made in Oklahoma by John A. McCutchin for the American Petroleum Institute indicate that temperatures do not increase with depth so rapidly in central Oklahoma as compared with the temperatures farther east. If this is borne out by further investigations, Doctor Gould said, it may mean that if there should be oil at great depths in central and western Oklahoma and the equipment can be built to drill that far, the temperature may not be too high for drilling. Most geologists believe that in most of west-central Oklahoma if oil is present it will be found comparatively deep.

PARTIAL STATE CONTROL IN CALIFORNIA SOON

(Continued from Page 29)

nated by a normal decline. The procedure to be followed by the oil and gas commissioners is not definitely known but their modus operandi will undoubtedly be determined by existing conditions and based upon expert technical advice in which the technicians, petroleum engineers and geologists of all large companies will be asked to concur. This new bill is especially timely in view of the deep zone exploitation under way at Santa Fe Springs and the drilling operations under way in the Kettleman Hills Field of Kings County and in the subdivided town lot section of the Lawndale Field of Los Angeles Basin.

On Bureau's Initiative

The oil and gas commissioners will not have to wait for operators to signify their inability to agree upon a natural conservation program before assuming the initiative. The mere fact that a surplus exists in any field is ample justification for the commissioners to take action and force operators to reduce their production of natural gas or utilize the surplus for repressuring work or storage in depleted zones. This new bill will prove especially popular with natural gas companies as it will alleviate peak conditions and spread flush production over a longer period. Distributors will therefore be able to anticipate a sustained production in place of the short high flush production which has characterized town lot development.

California is faced with the possibility of having to cope with an excessive production practically during all the current year unless some concerted attempt is made to alleviate conditions by curtailing development work or prorating production. It is out of the question to anticipate any substantial reduction in drilling operations in fields containing town lot areas as these diversified holdings are all entitled to the same consideration from a development standpoint. The current year started off on the wave of a rapidly increasing production and it would not be surprising if California production aggregated in excess of 250,000,000 bbls. for 1929. The year is still young and if present constructive policies are carried to a successful conclusion the final result may be somewhat lower.

Santa Fe Springs, Kettleman Hills and Lawndale hold the key to the production situation at present and this trio will be the governing factors in state production for the year. Santa Fe Springs is experiencing deep zone exploitation involving the Nordstrum and Buckbee zones but will soon enter another development cycle covering one or more recently discovered new deep virgin horizons. Production in this field should continue at a relatively high rate for the greater part of the year, although the output may fluctuate to a considerable extent.

Lawndale Unknown Factor

Lawndale is still an unknown factor so far as substantial production is concerned although it is the consensus that this field will have an important bearing on state production. The formations present are especially conducive to fast work and the potentiality of the Lawndale Field should be determined within a few weeks as several wells should be passed for production tests. The Kettleman Hills Field of Kings County will be developed along conservative lines so far as well spacing is concerned but the enormous potentialities may prove an important factor in production and tend to offset this projected conservative drilling. The limits of production at Kettleman Hills will probably not be determined for a year or more but based on geological survey this field may extend over an area in excess of 5 or 10 miles. The enormous drainage area in a field of this size will be the governing factor in future production and Kettleman Hills is expected to be doing in excess of 50,000 bbls. per day before the year draws to a close.

These three fields, Santa Fe Springs, Lawndale and Kettleman Hills, should be the controlling factors in state production although other fields will also be reflected to some extent. The Elwood Terrace Field of Santa Barbara County will show increased production during 1929 but the Barnsdall and Rio Grande interests can probably regulate the production of this area. Long Beach is gradually but surely passing out of the picture and definitely headed for a much lower level. Drilling operations are slowing up with the result that fewer completions are being listed and production is registering a normal decline. This is about the only field that can be expected to show any appreciable decline during 1929 and it is probable increased drilling at Seal Beach and in some of the older areas may offset the drop at Long Beach to some extent. There is approximately 119,000 bbls. per day of light and heavy oil shut in throughout the State at present and while marketers do not anticipate any change in the status of this curtailment it would not be surprising if some of these wells were opened up during the summer due to lease requirements.

Effect on Eastern Market

The overproduction situation has been the subject of considerable thought and discussion and is still an unsolved problem. Conditions in California are especially threatening and the anticipated excess production of crude oil and natural gasoline will undoubtedly influence eastern markets to a large extent and may even dominate the price structure under certain conditions. If California production comes up to expectations and averages in excess of 700,000 bbls. per day during 1929 the gasoline and refined oil market should continue to be unstable for another year. During the next 12 months 15,000,000 bbls. of gasoline should be dumped on the Atlantic Seaboard to be absorbed in competition with Mid-Continent and Gulf Coast production. In addition to disposing of this surplus, California refiners may be obliged to store another 15,000,000 bbls. of crude and refined oils during the year if production continues unabated. To accomplish this operators will probably find it necessary to construct additional storage. Fuel oil will continue to pile up all during the year and to affect adversely the price of low gravity crude. Refining crude, on the other hand, is in demand by practically all California refiners and light oil will continue to be needed in larger quantities from time to time to maintain the present high operating status of refineries. Runs to stills of crude oil in 1929 will probably be at a rate never reached heretofore as a large part of California's production during 1929 will be refining crude of a highly desirable nature.

NORTH DAKOTA DEEP TEST GIVES VALUABLE DATA

The deep prospect well drilled recently by the Glenfield Oil Co. in Foster County, North Dakota, although abandoned in 1928 at a depth of 3,240 feet without the discovery of commercial amounts of oil or gas, is stated by the Department of the Interior to furnish valuable information on the subsurface geology of that part of the State that will be of aid in the drilling of further prospect wells.

Through the courtesy of Prof. Howard E. Simpson, state water geologist of North Dakota, and A. T. Thompson, president of the Glenfield Oil Co., an opportunity to examine a set of cuttings from the Glenfield well was afforded to J. B. Reeside, Jr., of the United States Geological Survey. The well is in the SE Section 18-146n-62w. Very little has been known about the subsurface geology of this region, and any new data, such as those afforded by this boring, are of great interest. A very detailed study of the mineralogic and paleontologic features disclosed by the cuttings was not possible in the time available, but the results obtained in a reasonably complete examination include several points worthy of record, such as the character of the lower part of the Cretaceous section, the presence of strata of Richmond age, and the depth to the pre-Cambrian crystalline rocks.

As Mr. Reeside interprets the log, the following units were encountered:

	Feet
Glacial deposits (Pleistocene)	97
Sand, containing lignite and water, of undetermined age	90
Pierre shale (Upper Cretaceous), containing a 30-foot sand at 170 to 200 feet below the top	1,073
Niobrara formation (Upper Cretaceous): Shale and limestone	110
Benton shale (Upper Cretaceous): Shale with some limestone beds	160
Dakota and probably other sandstones (Upper Cretaceous): Grit, sandstone and minor shale	220
Light-colored limestone and gray shale, with a 15-foot sand at the base; age undetermined	100
Red beds, probably belonging with the underlying strata	90
Ordovician strata of Richmond age: Light-colored dolomite and limestone and red shale, containing fossils determined by E. O. Ulrich	810
Blue-gray shale, red sandy shale, dark brown coarse sand, in part highly glauconitic; age undetermined, possibly pre-Richmond	350
Granite gneiss (pre-Cambrian), determined by C. S. Ross	100

The sandstone in the Pierre shale lies at almost exactly the same height above the base of the shale as a similar sandstone noted in the Des Lacs Western Oil Co.'s No. 1 Blum, in Section 4-155n-85w, Ward County, about 140 miles to the west. Possibly the sandstone in both wells corresponds to that which yields gas still farther west, in the Cedar Creek anticline of eastern Montana. The thickness of the Niobrara and Benton strata shows an expected decrease from that farther west and agrees with that reported by Todd for eastern South Dakota. The beds of Richmond age belong to a widespread series of deposits known in the Black Hills, in Manitoba, in Minnesota, and in other states. In Manitoba the beds of this age include red strata in the upper part and limestone and dolomite below. The granite gneiss definitely determines the base of the sediments.

OIL ROYALTIES SUBJECT OF E. I. REESER BOOK

Edwin I. Reeser, of the Barnsdall Oil Co., and son of Edwin B. Reeser, president of the Barnsdall corporation and of the American Petroleum Institute, has written a book entitled "Oil Royalties," which is referred to as a handbook on petroleum for the layman. The book is being published by the Dexter Publishing Co., Tulsa.

Approximately half of the book discusses oil royalties from various angles, chapters in this section including "The Rights of the Royalty Owner," "The Royalty Business," and "The Value of Royalties." The work also includes a discussion of the conservation movement in the petroleum industry, tracing developments along this line already taken by the industry and by Federal and state governments. Other chapters are devoted to oil investments, the oil industry today and the future of oil.

EMPIRE PIPE LINE CO. CONNECTING NEW POOLS

BARTLESVILLE, Okla., Feb. 16.—Officials of the Empire Companies announce that work has been started on the erection of a 12,000-bbl. oil pump station three-quarters of a mile east of the present Valley Center water pump station in Sedgwick County, Kansas. The station will be utilized to pump oil from the new field in the vicinity of Valley Center.

The company's present 12-inch water line between Valley Center water pump station and El Dorado is being reconditioned and will be used for the discharge line from the Empire's new oil pump station. Present plans also call for the erection of eight 3,000-bbl. tanks on the two-acre plant site. With favorable weather during the construction period it is estimated the station will be in operation by March 5.

Satisfactory progress is being made on the construction of the company's 8-inch crude oil pipe line from the Cimarron pump station near Guthrie, Okla., to a field station now being erected near Oklahoma City. To date 50 per cent of the line has been laid. It is estimated the line will be completed by March 1.

All cottages, garage and bunk houses have been practically completed at the Greig pump station. Foundations for the main pumping unit are in and the pumps and motors will be hauled to station site this week. All tank grades and fire walls are completed, the 15,000-bbl. tank is on hand and construction on the two 10,000-bbl. tanks is well under way.

Construction work has been started on the gravity gathering system of the oil pipe line division in the Oklahoma City Field. Twelve and 10-inch lines are being laid from the Oklahoma City station and this work should be completed by March 1.

Up to February 15 a total of 1,773 cars—equivalent to approximately 354,600 bbls. of oil, have been shipped since December 11 from the Indian Territory Illuminating Oil Co.'s discovery well in the Oklahoma City Field. All of this crude moved to the Empire refineries at Ponca City, Cushing and Okmulgee.

LIGHTEST RUMANIAN OIL

A report from Bucharest states that while deepening its old well in the Ploesti area, the Romana Americana Co. reached a stratum of the lightest oil ever discovered there. It produces without distillation 8,000 gallons of benzine daily of a specific gravity of .717.

DRILLING IN AUSTRIA

Oil prospecting in Austria is to be encouraged by a measure to be submitted to Parliament, granting facilities for 10 years in regard to taxes and local rates to concerns that undertake borings up to the year 1931. It is probable that in the near future systematic oil drilling will be started in the Vienna Basin, not far from the Austrian capital, by foreign interests.

HYDROGEN SULPHIDE GAS PERIL IN PANHANDLE AND PERMIAN BASIN

By V. H. Hayslip*
Humble Oil & Refining Co.

Since oil was first discovered in the Texas Panhandle and Permian Basin, the fight to combat hydrogen-sulphide gas has been on. Since we started producing, transporting and refining sour crude we have lost six men through hydrogen-sulphide gas. The first two deaths occurred in a receiving house in a refinery when a valve on a low pressure gas line broke allowing the gas to escape and fill the room. One of the operators climbed a ladder to close the valve and was overcome almost instantly. When he lost consciousness he fell and one of his arms caught in the ladder and he hung suspended. Another operator ran to his assistance and was overcome before he could get the first man loose. Before these two men could be removed seven others were overcome and it was only after the use of artificial respiration and inhalators that seven were revived. The first two had been in the gas too long and were beyond aid. The next fatality was on top of a 37,500-bbl. tank near the Church and Fields Pool. When the night gauger did not bring in the 7 o'clock gauges his body was found on top of the tank.

Recommendations Made

After this death a meeting was called and, with the assistance of H. C. Fowler of the United States Bureau of Mines, certain recommendations were made and the following rulings were put into effect:

1. No man shall be allowed to go upon or in the near vicinity of any tank containing sour crude ,unless he is wearing a gas mask and is accompanied by another man who shall stand upon the fire wall where he can keep the first man in view at all times. The second man also shall be equipped with a gas mask and shall be ready to go to the assistance of the first man if the necessity arises.

2. No one shall be allowed to enter a tank, building or any other enclosed place where hydrogen-sulphide gas may be present without wearing proper breathing equipment, safety belt and life line and without being accompanied by another workman who shall stay in the open where he can go to the first man's assistance if necessary.

3. Every man working in the vicinity where sour crude is produced or is being handled shall be instructed in the Schaefer method of artificial respiration and they be warned of the danger of hydrogen-sulphide gas; that "POISON GAS" signs made of enameled porcelain 12 by 18 inches in size be posted at each pipe line station, refinery, dock and producing field, this sign to read as follows:

"POISON GAS. Oil and Gas in this vicinity may contain enough hydrogen-sulphide to cause unconsciousness and death without warning."

Observe the Following Precautions Under All Conditions.

1. Never stand on the side of any opening where escaping gas will blow toward you.

2. Before entering a tank, cellar, or other enclosed place where from leaks, breaks or otherwise, this gas has accumulated, or BEFORE attempting to repair leaks or breaks in lines where gas is escaping, put on hose type gas mask, safety belt and life line, and be sure that another employe is in position to give immediate assistance in case of emergency.

NOTE: Blower type gas masks afford the best protection against this gas and this equipment will be available for use under direction of the foreman.

3. Do not try to determine the presence of harmful quantities of this gas by its odor.

4. If a break in the line occurs, hold your breath and get out of the danger zone. Report all dangerous conditions ad get instructions.

5. In case a man is overcome, get him to fresh air, give artificial respiration at once, call a doctor.

That "DANGER POISON GAS" signs of the same design and color be posted at each tank containing sour crude; this sign to read as follows:

"Danger Poison Gas. Before going on this tank put on gas mask and be sure that another employe, also wearing mask, is on fire wall in position to give immediate assistance. Do not climb tank steps hurriedly. Before opening hatch be sure that breathing has slowed to normal."

4. Vents or breather pipes in tanks be moved from near the gauge hatch to a position one-quarter or one-half the way around the tank where the prevailing wind will carry the escaping gases away from the gauge hatch and stairway. It was recommended that different automatic gauges be investigated and tried out to determine if any were suitable for tanks containing sour crude.

5. That storage and pipe line work tanks be equipped with a guard rail on each side of the stairway to guard the gauge hatch.

6. Pipe line walkers are instructed to get in communication with the nearest pipe line station before repairing any leak in the line, except when some one can be obtained to watch the line walker while doing the necessary work.

7. All pipe line stations, refineries, loading terminals and producing fields be supplied with both hose and canister type gas masks and the men fully instructed in the use and care of them.

Fatalities Reported

Shortly after these rules were put in force a pipe line walker on one of the main lines discovered a collar leak and obtained the services of a farmer to watch him while making the necessary repairs. After the leak had been exposed the line walker sent the farmer after a bucket of drinking water while he started to caulk the collar. When the farmer returned he found the line walker lying unconscious face down in the oil in the bell hole. The line walker was revived but died the following day of pneumonia.

The next death occurred at a refinery tank farm when a gauger was overcome and fell through the stairway railing, breaking his neck. The sixth and last death occurred in January 1929, when a workman entered an empty tank which had contained oil with very little hydrogen-sulphide gas in it. This man acted against instructions from his foreman, against the advice of his fellow workmen and in spite of the fact that danger signs were posted at the tank steps.

In the early days of the Crane County boom when the gas was at its worst it was discovered that gas masks were being used with canisters which afford very little protection against hydrogen-sulphide. These canisters were immediately destroyed and canisters containing 80 per cent soda lime and 20 per cent activated charcoal used. We are now using canisters of the 2,000 cc. size containing equal parts of soda lime and activated charcoal as tests showed that under low concentrations of hydrogen-sulphide and petroleum fumes the 20 per cent activated charcoal would break down before the soda lime and the canister be unfit for service.

We have no record of any of our workmen being overcome with hydrogen-sulphide gas while wearing the proper breathing equipment and it is our belief that if the workmen take the precautions outlined there will be no more fatalities, unless, in a case of a break, men are caught in an enclosed place where they are unable to get to the fresh air.

We have had numerous occasions when workmen have been overcome and have been revived by artificial respiration. On one occasion the first-aid team applied artificial respiration for more than two hours before the patient started to breathe. Not only have our men saved the lives of fellow workmen, but they have on several occasions been called to other companies' leases to administer first aid.

*Before Texas division, National Safety Council, Midland, Tex., February 15.

SEVERAL PRODUCTS ARE STRONG IN OKLAHOMA

(Continued from Page 28)

crudes available in West Texas, California, Smackover and Venezuela either do not have a kerosene cut or it is so small that it fails to supply the requirements of the refiners operating with these grades of crude oil. Most of these crudes are of relatively low gravity with objectionable sulphur compounds which make the manufacture of high-grade kerosenes either impossible or highly expensive.

Yields Reduced

The December figures of the Bureau of Mines (latest available) shows what this situation means for the entire country. The data for the entire United States show that the crude oil runs to stills in December, 1928, were 8,981,000 bbls., or 12.7 per cent greater than in December, 1927. The kerosene production for the two months in contrast was practically unchanged, the increase in December, 1928, totaling 99,000 bbls. The same situation obtains in the Mid-Continent. Crude oil runs to stills jumped from 13,253,000 bbls. in December, 1927, to 16,095,000 bbls. in December, 1928, an increase of 21.4 per cent. Kerosene production in contrast is practically unchanged, totaling 1,092,000 bbls. in December, 1928, and 1,066,000 bbls. in December, 1927. Despite the large increase in crude runs to stills of inland refineries in Texas, including West Texas, the kerosene output increased only 23,000 bbls. in December, 1928, and in Arkansas and North Louisiana the production was less during that month than in December, 1927.

Several of the coastal refiners operating with the crude oils previously mentioned apparently are in need of kerosene to take care of their domestic and export requirements. One large coastal refiner in Texas which has greatly increased its refinery capacity during the past year, since the first of the month has purchased approximately 2,000,000 gallons of kerosene from an Oklahoma refiner. In North Texas and North Louisiana some of the large refiners on the coast have practically bought up all the surplus available over local requirements.

The continued strong demand for all oils suitable for furnace distillates is another bullish factor in the kerosene situation. This tends to reduce the yields of finished kerosenes. This furnace oil demand will continue strong over the next 30 days at least. By that time the spring demand for kerosene will be under way.

On the bearish side of the kerosene situation is the fact that at the first of the year stocks were 14.2 per cent higher than on same date of previous year. In the Mid-Continent this increase was 17.8 per cent with most of the increase in Oklahoma. The Mid-Continent increase totaled 128,000 bbls., 103,000 bbls. of which were in Oklahoma. Since the first of the year at least two of the Oklahoma refiners with large stocks have reduced their inventories.

Gasoline and Naphtha

Most of the larger refiners in Oklahoma continue to quote 7 cents to the jobbing trade for 58-60 U. S. Motor gasoline with a price range for the higher gravity grades so that the 64-66, 375 grade is quoted at 8 cents. The movement during the past week was largely confined to routine and contract requirements. Weather conditions are unfavorable in the consuming areas and jobbers are confining their purchases to current needs.

A few refiners who are keeping their output moving are selling the U. S. Motor grade as low as 6½ cents with occasional resale movements under that figure. The demand for naphthas is fair. Blenders report a steady movement to their trade in northern United States and Canada.

Kerosene and Distillates

The strength in kerosene has been previously explained. The domestic market was active and on Tuesday most of the larger refiners were quoting 5½ cents to the trade for the 41-43 water white grade. The same refiners were obtaining 6 cents for the 42-44 water white grade. Material was available from other refiners one-fourth cent under these prices.

The heavy demand for all gas oils, fuel oil and distillates suitable for furnace oils continues very strong. The 38-40 gravity distillate of suitable cold test and flash brought a low of 4 cents in Oklahoma last week and several refiners reported they could not take care of the demand for their distillates at 4⅛ and 4¼ cents.

Similar advances materialized in the better grades of gas oil and fuel oil. Gas oils of good color and low flash and as high as 3½ cents even in cases where the gravity was around 30 A.P.I. As has been explained in these columns before it is becoming more and more difficult to base prices for furnace oils on gravity. Cold test, flash, odor and color are the important specifications, many buyers paying no attention to gravity when they make their purchases. One case was cited last week where a refinery sold a recycle stock from his cracking unit at 3¼ cents although the gravity was only 24 A.P.I. This product had a flash under 190 with a zero cold test.

Fuel Oils and Gas Oils

No general price improvement is reported in the high cold test fuel oils. However the demand for high cold test fuel oils and gas oils is improving. One large purchase of 70 cold test gas oil by a refiner who used the material as charging stock for cracking operations was reported last week. The Oklahoma refiner who sold the material received 2¾ cents, a price which is now considered the bottom for any grade of gas oil.

Natural Gasolines

Natural gasolines were strong on Tuesday following a week of steady buying. Grade A was generally quoted at 7¾ cents, with quotations at 8 cents reported. Grade AA was strong at 7 cents. Grade BB, after heavy sales at 5½ and 5¾ cents, moved up to 6 cents. Grade C was quoted at 5¾ cents.

Lub Oils and Wax

Neutral oils are moving slowly in Oklahoma, with most of the manufacturers sold up on cylinder stocks and bright stocks. Prices were firm in the latter products.

Manufacturers of wax in Oklahoma are refusing to sell their product at the prevailing prices. As explained last week quotations have dropped so that the buyers are seeking to purchase under 4 cents. The first of the week one manufacturer stated his company expected to close a large order at 4¼ cents before the end of the week.

E. L. DOHENY, JR., IS SLAIN BY CRAZED MAN

Edward L. Doheny, Jr., was shot and instantly killed Saturday night, February 16, in his recently completed residence in Beverly Hills, Calif., by Hugh Plunkett, his confidential secretary, who then ended his own life with the same weapon. Plunkett, who had been in the Doheny home for more than 15 years, suffered a nervous breakdown several months ago and recently became mentally unbalanced. Mr. Doheny, who had formed a high regard for Plunkett, had tried to persuade him to go to a private sanitarium for rest, but Plunkett refused. One theory is that Plunkett, in his deranged condition, resented this effort and that the tragedy resulted.

Mr. Doheny, who graduated from the University of Southern California in 1916, was 36 years old. He leaves his wife and five small children, all of whom were in the house at the time of the shooting. He recently gave $200,000 to his alma mater for the formation of an endowment fund to provide educational opportunities for worthy students.

Under the name of Doheny & Doheny, Mr. Doheny and his father were carrying on important wildcat operations. The elder Doheny, who is 72 years old, was extremely devoted to his son and the tragedy is reported to have left him in a state bordering on collapse.

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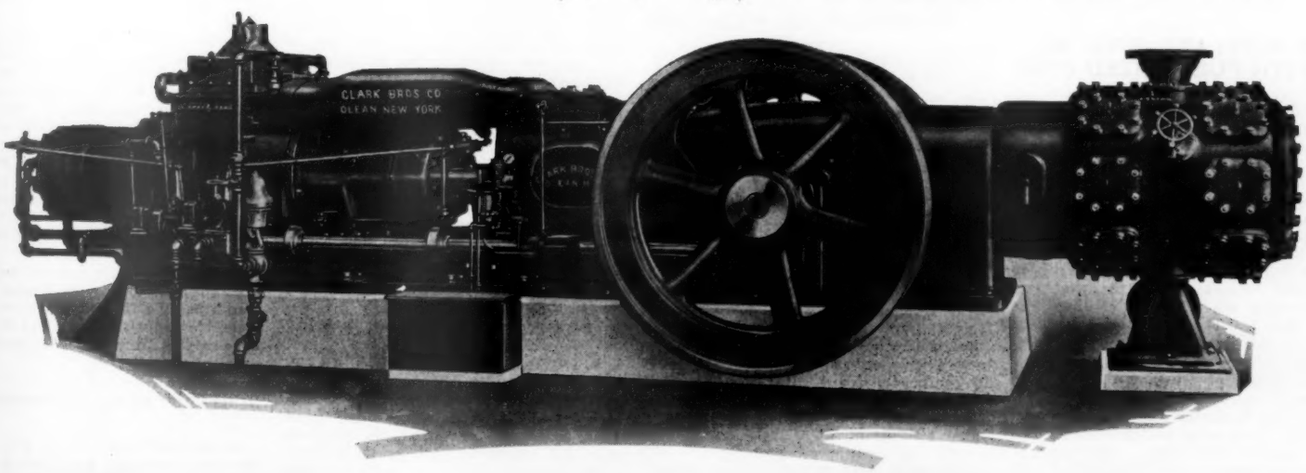


CLARK

Of Interest to Sales Departments

Larger California Marketers Show Loss During Last Quarter

As a group, the larger gasoline marketers in California showed a substantial loss in their volume of sales during the last quarter of 1928 in favor of the smaller marketers. In the list of the five largest three show decreases from 9 to 22 per cent and two show increases of 2 per cent and 13 per cent. This comparison is of interest too considering the State showed an increase in sales amounting to 8.22 per cent. The Standard Oil Co., the largest distributor, showed a decrease of 14 per cent while the Shell Petroleum Corp. lost 9 per cent on their sales. The Richfield Oil Co., which ranked third in the list, showed an increase of 2 per cent, the largest company to show any gain. The sales reported for the last quarter are shown below.

		Pct gain or loss
Standard	53,772,854	14 dec.
Shell	41,817,446	9 dec.
Richfield	29,749,289	2 inc.
Union	27,017,064	22 dec.
Associated	23,365,876	13 inc.
General Petroleum	17,408,712	120 inc.
Texas	13,070,385	5 dec.
Wilshire	9,135,634	71 inc.

Probably the most interesting feature of the fourth-quarter figures is the rise of the Wilshire Oil Co. to eighth place in gallonage, displacing Pan American. Wilshire is regarded as the leader of the independent group, and has made notable strides in marketing in the last 12 months or so.

Pan American Petroleum, now the leader of the second group, reported an increase in business of 11 per cent, but it was not sufficient to head the Wilshire. Marine Refining's gain was 21 per cent, followed in order by Hancock. This company increased its gallonage from approximately 1,500,000 gallons in the fourth quarter of 1927 to more than 7,300,000 gallons in the last quarter of 1928, a gain of 386 per cent.

Rio Grande is another of the smaller marketers to show progress in recent

(Continued on Page 162)

MAY SUPPLANT FUEL OIL WITH PULVERIZED COAL

NEW YORK, Feb. 16.—The United States Shipping Board has conducted experiments with an apparatus which permits the use of pulverized coal in oil burning ships in case the oil supply should be exhausted. These experiments, which have been conducted at the League Island Navy Yard in Philadelphia, are reported encouraging thus far.

The use of pulverized coal has been developed largely during the past two years under the direction of the Shipping Board. The freighter Mercer is now in service as a pulverized coal burner.

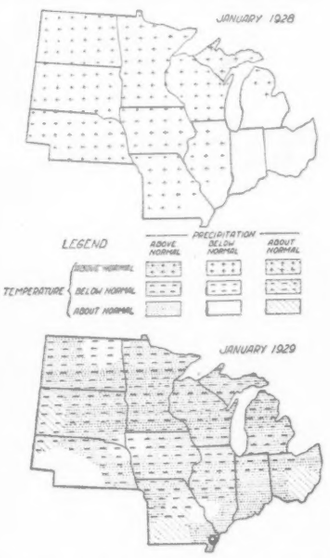
The system of crushing the coal and feeding it to the fires is sought now for other ships in the merchant marine, particularly those using Scotch boilers which have smaller fire boxes. One type of apparatus brought some success, and now another and smaller apparatus is being tried out.

This apparatus provides for the pulverizing of coal by an electric motor at the face of the furnace and the blowing of the coal dust in as soon as it is crushed. The Navy Department is studying the experiments closely because of the importance of pulverized coal should the oil resources of the country become depleted, or some sudden emergency require the use of pulverized coal by ships normally equipped for burning oil.

WEATHER CONDITIONS IMPORTANT FACTOR IN GASOLINE CONSUMPTION

By H. K. Davis
Western Petroleum Refiners Association

The effect of weather on gasoline demand is frequently overestimated. There are times, however, when weather becomes of such importance that refiners who fail to list it among the factors which should be considered in the continuous process of policy revision are apt to find their plans inadequate.



Normal weather and what is termed normal seasonal variation in gasoline demand are both based on past experience and both contemplate a certain number of inclement days. When refiners plans are predicated on normals of this character the advent of stormy weather with a resultant slackening in motor traffic should have but slight effect upon opinions of production, value, or demand. However, when subnormal weather prevails over an extended period it frequently is a portent, not of deferred demand, but of actual gallonage gone beyond recall and should, therefore, be given serious consideration by all refiners.

The weather conditions of January of both 1928 and 1929 were far from normal and decidedly in contrast over the North-Central states wherein Mid-Continent refiners market a large share of their gasoline. The accompanying maps set out the weather conditions prevailing during the first month of each of the past two years. Taken as a whole, the weather was more than normally favorable to gasoline consumption in the Januarys of 1926 and 1927. In both years there was a marked absence of cold weather and over practically the entire range of territory covered by the maps temperatures were either normal or above.

Precipitation during January of these two years showed a change with respect to geographical location of the extremes but taken all in all was not unfavorable to refiners in either year. January of 1928 was warm and unusually dry over practically all of the area west of the Indiana-Illinois line while normal temperatures and a deficit of normal precipitation prevailed east thereof. January of this year, however, recorded subnormal temperatures and excessive rain or snow over practically the entire area.

The contrast in the maps of the two latest years with that of last year reflect-

(Continued on Page 162)

STANDARD OF LOUISIANA PROMOTER OF AVIATION

SHREVEPORT, La., Feb. 16.—Standard Oil Co. of Louisiana which has a fleet of three airplanes for the convenience of the sales department primarily is aiding in the development of commercial aviation in its territory by painting the roofs of its station buildings in 310 cities in Louisiana, Arkansas and Tennessee with signs indicating whether each particular community has improved or emergency landing fields and an arrow directing fliers to them.

These signs will give the name of the town, the arrow and the distance of the field from the building on which the sign appears. There are 65 towns in the three states possessing improved or emergency fields, several of which are modernly equipped. Colors, size of letters, etc., will conform to Department of Commerce standards and will be legible from a minimum altitude of 2,600 feet.

NATIONAL OIL MARKETING SHOW

The National Oil Equipment and Exhibitors Association has set a letter to its members in which it announces the plan for a National Exhibit of oil marketing equipment and refined petroleum products in Chicago. The plan, it is understood, is still in its formative stages and this is a general proposal by the organization of exhibitors to its members. The plan calls for a general exhibition of equipment and refined products to be put on at the Stevens Hotel, Chicago, in October or November of each year. It is planned to make the exhibit national and even international in scope. There are subsidiary features planned such as the issuing of a joint catalog of the members' products, the maintenance of meeting rooms and possibly a permanent exhibit. The management is to be in the hands of a board of directors selected from the manufacturers of equipment and the petroleum refiners. The active manager will be a permanent secretary and for this position Lou Harrington has been selected for the present. Mr. Harrington resigned from the I. O. M. A. to take up this work and has a temporary office on the fourteenth floor of the Engineering Building at 222 North Wells Street.

FRANCE TO INCREASE TAX

WASHINGTON, D. C., Feb. 16.—A new tax of 10 francs per hectoliter on gasoline, pure or mixed, on benzols, benzines, toluenes, and on gasoline made from coal, pure or mixed, the proceeds of which are to be used for the maintenance or improvement of roads has been instituted by the French government according to the Department of Commerce. It is expected that the new tax will yield close to 160,000,000 francs per year.

Several of the French automobile clubs and associations strongly protested against this additional tax to be borne by automobilists. Some of the automobile associations have raised the question whether all of this surtax will be used for road improvement. They believe it is said that a large part of it will be employed to pay an increased personnel of the Road Department.

PETROLEUM IS LARGEST ITEM THROUGH PANAMA

The annual report of the governor of the Panama Canal for the fiscal year ended June 30, 1928, shows that mineral oil continued to be the largest item of cargo, although there was a decrease of over 1,500,000 tons as compared with the previous year. The proportion of tanker traffic is discussed as follows:

On account of increased output from oil fields which have their access to the sea on the Atlantic Coast of the Americas, tanker traffic through the canal declined considerably during the fiscal year 1928. It shows a decrease of about 1[illegible] per cent when compared with that of 1927. Tanker transits totaled 1,121 as compared with 1,324 during 1927, a decrease of 203. Tank ships comprised 17[illegible] per cent of the total commercial transits during the year, made up 21.2 per cent of the Panama Canal net tonnage, paid 20.1 per cent of the total tolls collected and carried 19.7 per cent of the cargo which passed through the canal.

During previous fiscal years increases or decreases in traffic have been due largely to fluctuations in tanker traffic. The heavy increase in 1928, however, over the preceding year is due entirely to general traffic. Transits of tank ships during 1928 decreased 203 as compared with 1927 while transits of vessels engaged in general traffic increased 1,184, making a net increase of 981 in commercial transits. In Panama Canal net tonnage the tank ships decreased 1,380,143 tons while general cargo vessels increased 4,610,962 tons, a net increase for all of 3,230,819 tons. Tolls collected from tank ships decreased $1,222,369.74 while tolls collected from general cargo carriers increased $3,938,039.40, making the net increase $2,715,669.66.

Omitting transits of public vessels of the United States and other vessels exempt from the payment of tolls, the number of ocean-going vessels transiting the canal daily average 17.6 throughout the year. Of this number tank ships averaged 3 transits daily, the balance of 14[illegible] being made up of general cargo carriers, passenger ships, warships of foreign nations, etc.

Cargo carried through the canal in tank ships decreased from 7,250,579 tons in 1927 to 5,829,722 tons in 1928, or 1,420,857 tons. Of the 5,829,722 tons, 5,611,644 tons were shipped from Pacific to Atlantic Ports and 218,078 tons from Atlantic to Pacific. Shipments of both California and Peruvian oil were considerably less during the fiscal year 1928 than during 1927. Of the aggregate shipments of mineral oils through the canal during the year 4,273,726 tons originated at the port of Los Angeles.

The foregoing figures for tanker cargoes do not comprise all mineral oil shipments passing through the canal, as considerable quantities of refined oil in cases are carried through in general cargo carriers.

SURPLUS FUEL APPROPRIATION

WASHINGTON, D. C., Feb. 15.—"If the same favorable conditions in the fuel oil market continue during the coming year," said Representative Taber, a member of the House committee of appropriations, "it will result in an excess of appropriations of $1,500,000 to $2,500,000." Addressing the House of Representatives Mr. Taber referred to the prices of fuel oil as having gone down and expressed the view that it might be well to use some of the money being appropriated to purchase oil for storage as the amount allowed in the bill with a lower price of fuel oil would be far in excess of the requirements of the Navy.

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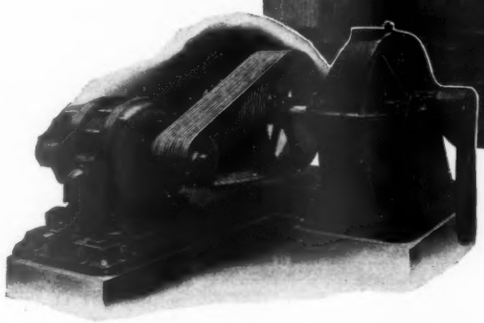

Texrope Units Run Cool— *and are highly efficient*

THIS Allis-Chalmers Texrope Driven Double Reduction Unit operating in Winkler County, Texas, is saving money for the operators of this lease with every stroke of the polish rod. It has a constant full load mechanical efficiency of 97%.

All parts of Texrope Double Reduction Units run cool, with low oil consumption. The gear reduction is of the quiet herringbone type, with the main shaft extended to permit lining up the drive sprocket with the sprocket on the hoist or draw works.

The Texrope Drive is used as the first reduction. Texropes, being elastic, absorb the shock loads without transmitting them to the prime mover. They will not slip and require very little care or adjustment. Texropes are also used on Allis-Chalmers single reduction units, slush pump and pipe line pump drives and on other oil field equipment requiring a highly efficient, flexible, short center drive.

Write your nearest oil field office for detailed information on Allis-Chalmers oil field equipment. Stocks carried at Tulsa, Houston, Sweetwater, and Los Angeles.

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Fuel Oil Is Industry's Safety Valve

Furnishes Outlet in Overproduction Periods. New Uses for Product Should Be Found to Aid in Stabilization

By Charles J. Deegan*
Marland Oil Co.

The purpose of this paper is to point out some features of the position of fuel oil and its relationship to the economic balance and price structure of the petroleum industry. The term "fuel oil" as used in this paper includes crude used as fuel as well as refined gas oil and fuel oil. The period covered is from 1922 to date, which period may be characterized as the new normal era after the post-war inflation and deflation. In order to establish a proper perspective, the figures on consumption of the principal products of petroleum are shown below in Table 1:

TABLE 1
PRINCIPAL ITEMS IN PETROLEUM CONSUMPTION

(Thousands of barrels per day)

	1922*	1928*	Increase
Fuel oil	880	1,220	340
Gasoline	388	1,046	658
Kerosene	151	162	11
Lubricants	64	95	31
Crude exports	30	52	22
Refining losts	51	80	29
Total†	1,564	2,655	1,091

*Daily average for period January to October inclusive.
†Does not include wax, coke, asphalt and "other finished products."

The above table shows that fuel oil and gasoline make up the bulk of the total demand in 1928 just as they did in 1922. There has been so much comment about the enormous increase in gasoline consumption that it may come as a surprise to some people to find that fuel oil is still the largest product in point of volume at least and seems likely to hold that place for at least another year. Having established the fact that gasoline and fuel oil are by far the most important products, the remainder of this paper will deal almost entirely with these two items.

It becomes necessary at this point to introduce what the economists call the "Law of Marginal Utility." This means simply that for any given article at a given price there are a certain number of people who feel that they can afford to buy the article and do so. If the price of the article can be reduced, then a larger number of people can afford to buy it and will do so. One of the best examples of this in recent years is the automobile. Everybody knows that the price of automobiles has been reduced again and again during the past 10 years. Everybody also knows that if the prices of automobiles were as high at the present time as they were 10 years ago, not nearly so many people could afford to buy them. On the other hand, some articles are so cheap that reducing prices would not increase the consumption materially because people can afford to use about all they have any need for at present prices. A good example of this would be common ordinary salt. These two examples might be called the two extremes. One of the objectives of this paper is to draw a parallel between the automobile and fuel oil on the one hand and between gasoline and salt on the other.

Gasoline Demand

It is improbable that automobile owners or other users have ever deliberately curtailed their purchases of gasoline at any time during the past seven years on account of high prices. There have been cases of regional depression due to local industrial conditions, but in some cases it is doubtful if any more economy was practiced in gasoline consumption than in the general scale of living. On the other hand, it is just as doubtful that extremely low prices have ever stimulated consumption to any material extent. There seems to be a tendency for automobile owners to drive just about so much and the price of gasoline makes little difference. One reason for this, of course, is the fact that there is no satisfactory substitute for gasoline, at least at a lower price. But it is also true that the price of gasoline during the past seven years, even at its highest point, was never high enough to make any material difference to the people who used it.

The reason is that any one who can afford to own a car or truck and keep it running can rather easily afford to pay the price asked for gasoline. Therefore, price had little to do with the amount sold. This, of course, does not apply to the sales manager who cuts the price in order to persuade a possible customer to purchase "A" company's gasoline instead of "B" company's. It does mean that in the end the combined marketing departments of the industry have sold no more gasoline than they would have sold at a somewhat higher price. We may, therefore, say that the consumption of gasoline in relation to its price is somewhat parallel with the demand for salt.

The parallel between the automobile and fuel oil is easily drawn and the conditions are almost exactly the reverse of those prevailing with regard to gasoline. For transportation a man has a choice of several methods. He can walk, ride a bicycle, use a horse, street cars, railroad trains or busses. If the cost of the automobile is low enough to make its advantages over other means of transportation worth while, then he will buy it. Most of the prospective users of fuel oil can use some grade of coal, coke, tar or gas. If the cost of fuel oil is low enough in proportion to its advantages as compared with other fuels, they will buy fuel oil.

The variety of purposes for which fuel oil is used is much greater than in the case of gasoline. The amount consumed is also greater, but unlike gasoline, fuel oil consumption can be increased considerably at any time by a reduction in price and an aggressive sales campaign. The potential market for fuels of all kinds for general heating purposes is much larger than the entire output for fuel oil. There are, however, satisfactory substitutes for these purposes in the form of coal and other fuels. The extent to which oil replaces these other fuels, depends on relative price and sales efforts. Numerous cases in the past seven years have shown that many large users of fuel have at various times changed from coal to oil and vice versa, the direction of change depending almost entirely on the relative prices of the two products. It is obvious that this means a flexible and fluctuating demand for fuel oil.

Fuel Oil Consumption

There are various uses for fuel oil in which it has marked advantages over other fuels and some in which it has practically no competition. For instance, it has a distinct advantage over other fuels in marine uses, on railroads in certain parts of the country and so forth. Without going into detail, it may be said that it has a large market from year to year in which it maintains its advantages over all other fuels. This market forms the backlog of fuel oil consumption. In addition to this backlog, there is a rather large portion of fuel oil constantly going into a highly competitive market. This market is a battleground and the amount captured by fuel oil rises and falls with its price changes relative to other fuels. Chart No. 1 shown below illustrates the difference between the rate of growth in gasoline consumption and the rate of growth in fuel oil consumption.

It will be noted that gasoline consumption follows a more or less steady trend regardless of the general condition of the petroleum industry. The reasons for this have already been given. Fuel oil displays no such steady trend. The total consumption in general rises and falls in accordance with the amount of overproduction of crude in the industry. There is a definite relationship between total fuel oil consumption and the balance between total petroleum supply versus total petroleum demand. When overproduction of crude oil brings the price structure of the industry down with a crash, the low prices stimulate the consumption of fuel oil and relieve the strain. When the supply of crude oil is insufficient to meet the demand, prices go up and fuel oil is driven from a part of its highly competitive market, thereby easing the strain on the demand for crude oil. This function of fuel oil gives rise to the title of this paper: "Fuel Oil—The Safety Valve of the Petroleum Industry."

It is apparent that this safety valve does not always open as soon as it should, although it generally closes on schedule. This is probably due to the fact that this highly competitive portion of the market belongs normally to the coal industry, at least to a greater extent, than it does to the petroleum industry. Therefore, it probably requires more sales efforts and price reductions on the part of the petroleum industry than the coal industry. Hence, although a share of this market can be captured by the fuel oil marketers through vigorous exertion, at the slightest relaxation in economic pressure, it tends to revert to the coal marketers.

The manner in which the expansion and contraction of fuel oil consumption acts as a safety valve in times of overproduction has been shown. The thing that interests most people, however, is what influence this may have on the price of crude oil and refined products. On the basis of statistics, it seems safe to assume that by and large the factor that controls crude prices and ultimately refined product prices is the amount of crude going into or coming out of storage. The difference between an addition of 100,000 bbls. of crude oil per day to storage and the withdrawal of the same amount is roughly a difference of 75 cents per barrel in the price of Mid-Continent crude.

It seems obvious, therefore, that prices and profits in the petroleum industry depend very largely on the volume of a relatively small surplus or shortage in supply. Since we are assuming that gasoline demand at any given time is practically fixed regardless of price, then the burden of absorbing a surplus of production or reducing a shortage falls inevitably on fuel oil. Since we have seen that it seldom fails to react quickly to a shortage of crude oil, it is obvious that its effect in times of overproduction depends on how much of the surplus it can absorb and how quickly it can do so.

Situation in 1928

It seems to have dawned on the refiners as a group in 1928 that there was no necessity for their suffering because of the sins of the producers. The year 1928 has therefore witnessed a paradox. Despite overproduction of crude, gasoline production has been held slightly below demand and stocks reduced. The

*A.I.M.E. meeting, New York, February 18-20.

MANY ADVANTAGES IN CENTRIFUGE METHOD OF MAKING BRIGHT STOCK

By G. T. Yost*
Pure Oil Co.

In the old process of cold settling the cylinder stocks were diluted with 65 per cent naphtha. This mixture was warmed to insure a complete solution and then pumped to a cylindrical tank which was well insulated so that low temperatures could be maintained with a minimum amount of refrigeration. The temperature was gradually lowered with a cooling medium, usually brine which was pumped through coils near the upper surface of the solution. When the temperature of the solution reached approximately 10 degrees Fahrenheit the refrigeration was discontinued and the petrolatum allowed to settle. Special sampling devices were arranged so that samples could be taken at various depths to note the completeness of the separation by determining the cloud point of the solution. When sufficient separation had taken place the cylinder stock solution and the petrolatum solution which had been settled out were separately charged to stills where reduction took place.

As the process which has just been described covered a period of approximately four to six days, it soon became necessary to develop some other process for the separation of wax in shorter intervals and to have the assurance that all batches would produce the same results. Just as the law of gravitation was used to separate the amorphous wax from the cylinder stock solution, the centrifugal method was developed to increase this force. The principle is exactly the same but the separation is much greater. This supercentrifuge operates at a speed of 15,000 to 17,000 revolutions per minute, and as a result it develops a centrifugal or separating force 13,000 times greater than the force of gravity. It is this great force which is responsible for the complete separation of the amorphous wax, thus the greater the separation the lower the pour test of the cylinder stock.

*From Pure Oil News.

Description of Plant

The equipment used in the process can be briefly described. There is one brick two-story building which houses the seven supercentrifuges on the second floor. The plant was designed by the Control Board of the Pure Oil Co., so that if it should become necessary to dewax more oil, more than a similar number of centrifuges could be conveniently placed in this building. The first floor is taken up with the pumps, manifolds and the recording instruments used in this operation. This refrigeration is supplied by a 70-ton Carbondale ice machine which furnishes brine at temperatures of —20 degrees Fahrenheit. All lines conveying brine and the chilling tanks are well insulated with hair felt or a thick layer of cork which is covered with tar paper. The insulation of lines and tanks is necessary because of the low temperatures which are maintained throughout the entire operation. Besides the building there are three chilling tanks and one heating and blending tank. These tanks have the same dimensions, having a capacity of 2,200 bbls. and each one is equipped with an electric motor and mechanical stirring device used for agitation to insure complete solution and also to prevent the petrolatum from settling out. The other tanks used in this process are petrolatum tank,

(Continued on Page 160)

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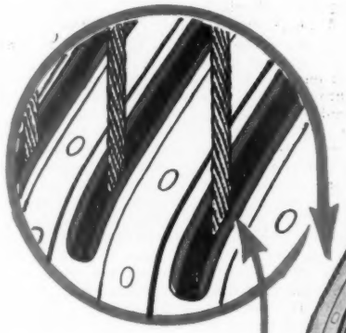

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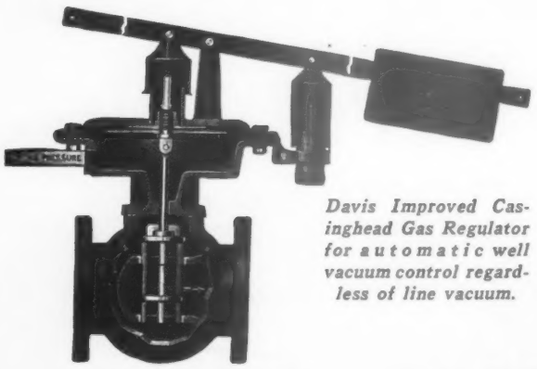

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result has been a price for gasoline that afforded a slight margin of profit. Fuel oil prices on the other hand were reduced greatly in order to expand the market and lighten the storage burden. But with cheap fuel oil and slight profit in gasoline, there has been a constant temptation to reduce runs of fresh crude and expand cracking operations. Up to October, it must be said that the temptation has been marvelously resisted for the percentage yield from crude has been practically normal or even slightly below.

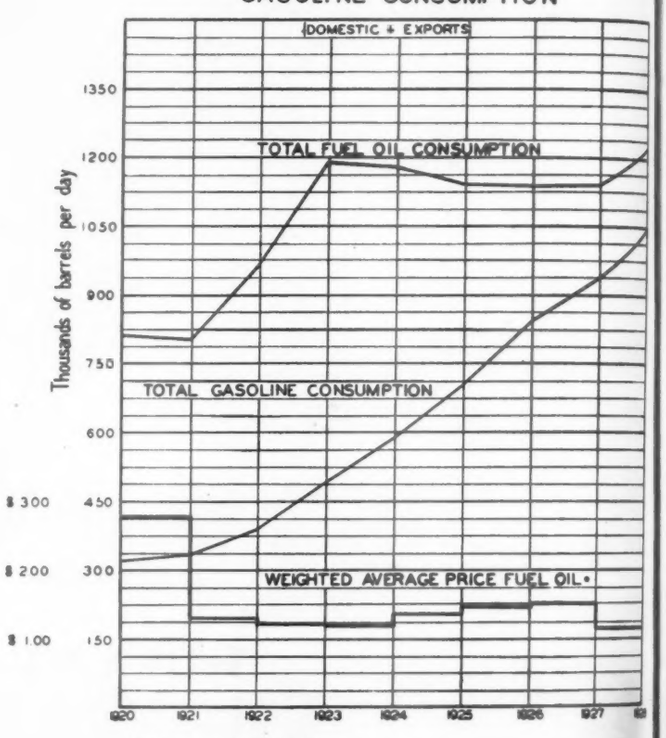
Of course, if the temptation should become too strong and a large group of refiners yield, the profit would be only temporary and chaos would soon result. Such action would react on the delicately balanced price structure in two ways. Reduced demand for crude would soon result in another price cut and further demoralization in the ranks of the producers. On the other hand, the increased demand for fuel oil for cracking would tend to increase prices and allow coal to drive it from a portion of its present markets. This would reduce the total demand for petroleum products, which would reflect back on the price of crude oil and also all refined products. Then we would have 1927 all over again. It is to be hoped that the refiners will realize that so long as they can refrain from yielding to the temptation of cheap fuel oil, just so long and no longer can they hope to keep their delicately balanced price structure and continue to eke out a bit of profit from operations.

Conservation Phase

Having considered the part played by fuel oil in the past and current history of the industry, it seems desirable to attempt to look into the future. We have heard considerable criticism in the past few years about the economic waste in burning oil for fuel in places where coal or some other fuel would serve the same purpose. It would be folly of the rankest kind to ignore the rising tide of public opinion about conservation. It is a movement of too vast proportions and in many cases well founded. Conservation applies to other industries as well as the petroleum and is gradually becoming a national shibboleth. Since we cannot ignore it, we must use a little common sense in considering its application. There is no true conservation in wrecking the economic foundations of existing major industry, because of vague and nebulous idea as to the needs of future generations. The use of fuel oil in industries where coal would serve is not going to be stopped in sudden and ruthless fashion by legislative fiat in the name of conservation. It is going to cease gradually as the result of economic law operating through a variety of channels. True conservation consists of the most complete utilization of a given amount of a commodity in the satisfaction of human needs.

Two Factors in Future

There are at least two factors which are going to seriously affect the future of fuel oil and tend to bring about true conservation. These two factors may develop simultaneously or one may create the other to develop. The one factor that is sure to come is ever increasing efficiency of utilization of coal in its present channels of consumption. We may rest assured that the coal men will find ways and means of making efficient heat units cost their customers less money. The other line is a scientific study to find new uses for coal. We may be equally certain that the time and effort now being devoted by internationally known scientists will bear fruit and that new



*Courtesy Mr. Joseph E. Pogue

New products and uses will be developed for coal. These new uses and by-products will probably act as by-products usually do, reduce the cost of the main product and likewise its sale price.

The other factor that will tend to bring conservation is simply a parallel development by the petroleum industry with regard to fuel oil, aided and assisted by developments in the internal combustion engine. We also must aid our customers to obtain efficient heat units at a lower cost, and at the same time we must put our scientists to work to find and develop those myriad by-products which they claim it is theoretically possible to make from petroleum.

In our case, we shall inevitably find that in certain fields we can obtain such a great advantage over coal that it will pay us to concentrate our efforts on enlarging these markets, gradually abandoning those in which our margin of superiority over coal is so small that a very slight change in relative prices will wipe it out. Thus it will eventually come

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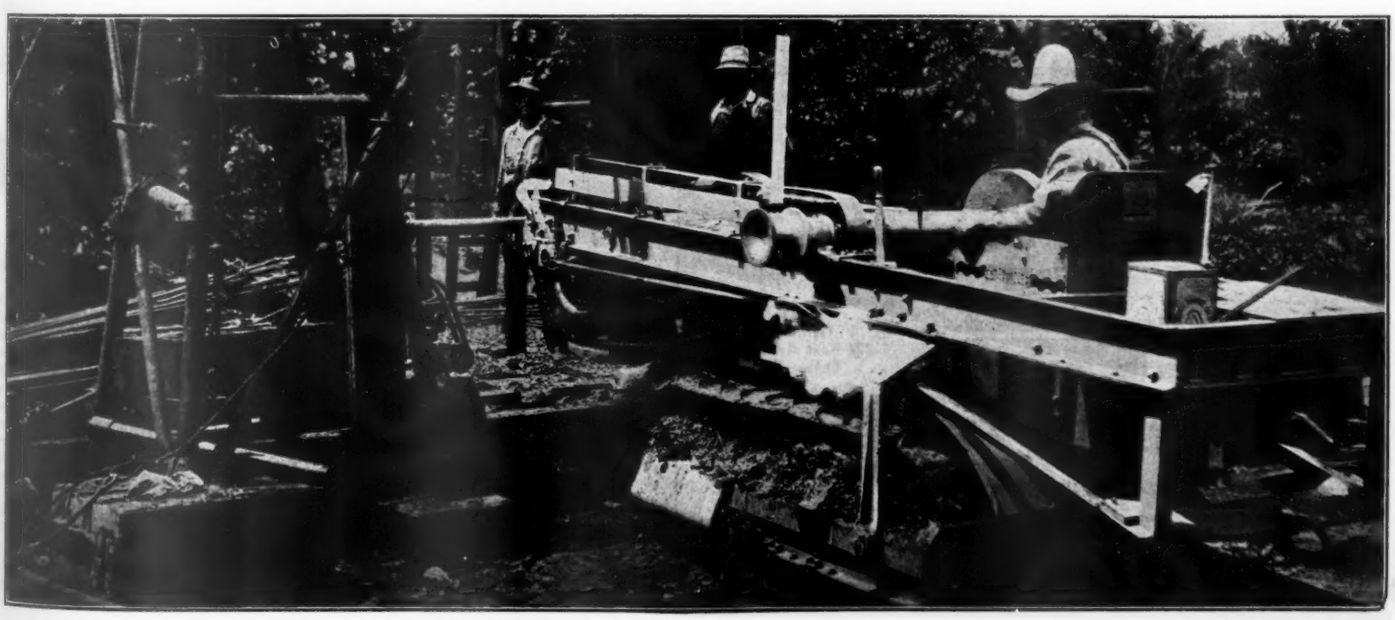

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about that through economic evolution instead of revolution, all those things so ardently desired by conservationists today will have been accomplished.

As an example of future possibilities, consider recent developments in the Diesel engine. The Packard Motor Co. has on the verge of commercial success, a Diesel engine, weighing only about 3 pounds per horsepower. This engine is being used experimentally in an airplane. For fuel the company claims to have successfully used a product as low as 26 gravity fuel oil, although for the most part, a distillate of somewhat higher gravity has been employed. It takes little imagination to see that if a Diesel engine satisfactory for airplanes can be developed, it can also be used in automobiles. On the other hand, certain oil companies are now putting on the market a pure, stabilized casinghead or natural gasoline, both for automobile and airplane use, for which they claim certain superior properties. The question then arises—What is the future motor fuel going to be?

It is a peculiar characteristic of many new inventions that they seldom drive out the old order altogether. Thus we still have steam engines working away merrily in spite of our internal combustion engines and electric motors. If this condition continues to hold true, we can look into that not too distant future and see our refineries turning out, not two or three grades of gasoline and perhaps one or two of Diesel oil; but rather a whole gamut of motor fuels for all kinds of internal combustion engines, ranging from the lightest gasoline to a rather heavy distillate, well down into the fuel oil cut. In addition to these conditions, we shall have been forced into chemical research for new products and will undoubtedly have found them. So we shall also be turning out quite a varied group of chemical by-products. It looks as though the future refinery is going to be a very complicated factory and we ought to have a little sympathy for those who are going to have to work out the complicated price structure of that not too distant future.

Recommendations

No paper is complete without a list of recommendations of the things to be done by the patient if he is to survive. This paper will violate no sacred precedents. Our recommendations will be few and we hope, brief, but in the vernacular—"they take in a lot of territory."

1. We urgently recommend to the refiners that they consider carefully their present delicately balanced price structure and gird themselves against the temptation to flood the market with gasoline from cheap fuel oil. The consequences will be fully revealed in red ink on the books.

2. We urge the industry to realize that curbing overproduction by artificial means is only the first step. It should be obvious by this time that mere proration and shutdown agreements can only result in a constantly mounting potential production held back. It is like a dam which must be constantly built higher and higher because the average inflow exceeds the average outlet. Therefore proration inevitably calls for a supplementary action toward developing new markets and increasing consumption.

3. The work to increase consumption should be divided into two parts: First, intensive analysis of present markets for possibilities of expansion, also a study of possible new uses for present products; second, research for new products from petroleum and particularly from the fuel oil fraction.

Our present research expenditures are to be directed entirely toward increasing the supply of crude oil and the yield of gasoline. These expenditures result only in adding to the burden of overproduction and further breaking of the price structure. We have heard the plea that the saturated chain hydrocarbons of petroleum are much more difficult to crack than the ring type hydrocarbons of coal.

We cannot help thinking that if some of the millions spent on geophysics, gas lift and cracking processes had been spent on research for new products, that perhaps the saturated hydrocarbons might not be considered so difficult to alter. We still find that it is easier to persuade oil companies to make an appropriation to help break price structures and reduce their own profits than one to help maintain prices and add to profits.

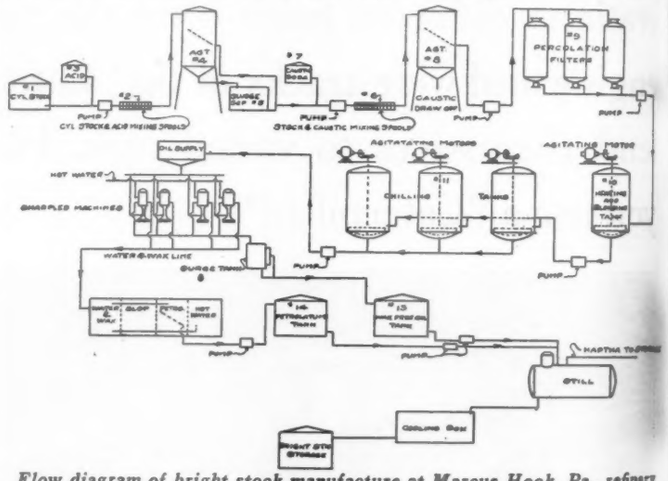
MANY ADVANTAGES IN CENTRIFUGE METHOD

(Continued from Page 156)

wax free oil tank, slop and carrier liquid tank.

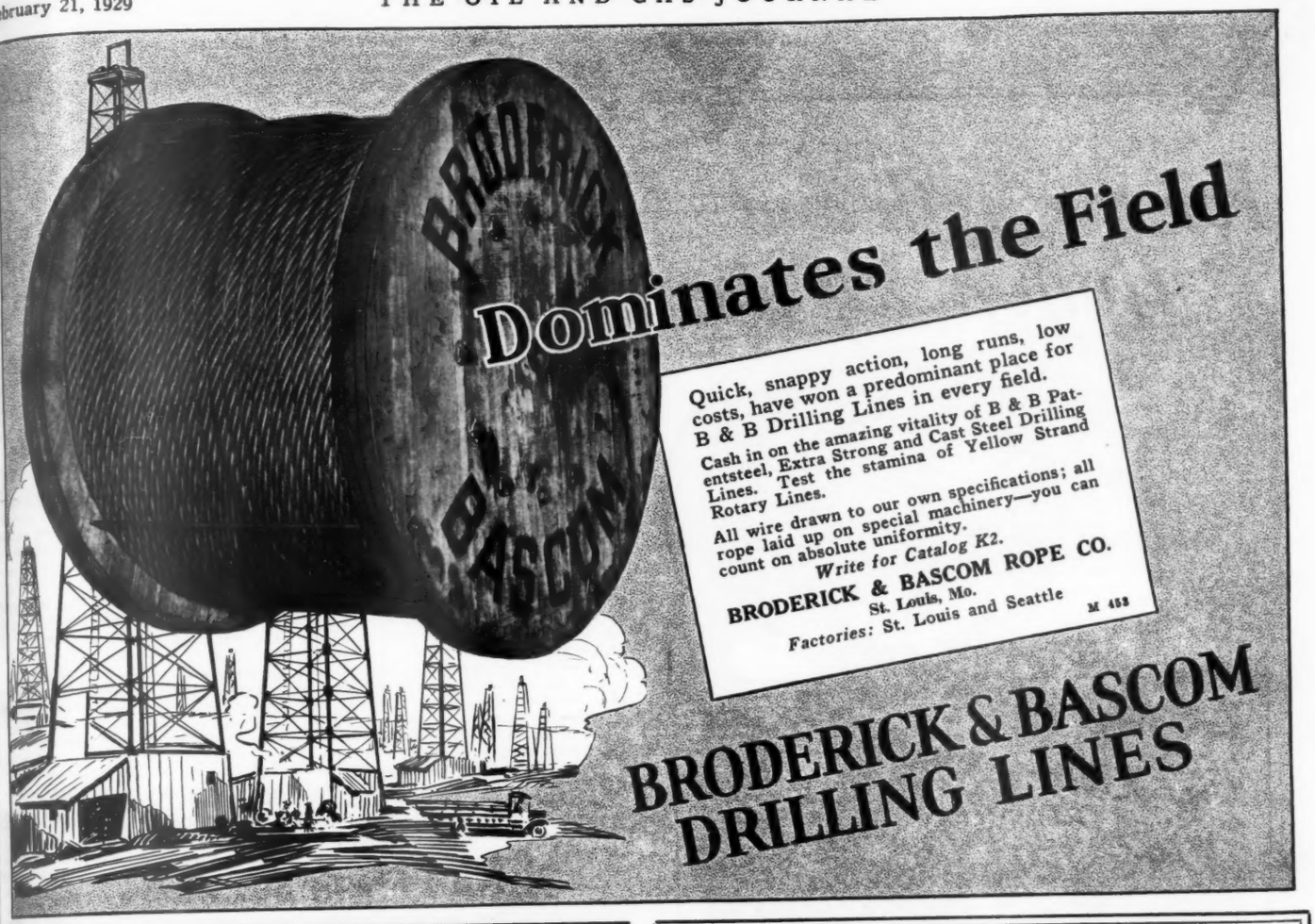
Description of Process

In order to describe the Sharples process adequately some of the preliminary steps will be explained in a brief manner. The cylinder stock is diluted with naphtha (1) in approximately equal proportions. Great care should be taken in selecting a naphtha having a narrow boiling range, that is a high initial which has a tendency to reduce evaporation losses and also is less hazardous. The end-point should be low, between 380 and 400, as it requires less still temperature for its reduction and therefore less color is lost in this operation.



Flow diagram of bright stock manufacture at Marcus Hook, Pa., refinery of the Pure Oil Co.

To insure complete solution this mixture is thoroughly agitated in a tank suitably equipped with heating coils and perforated coils for air agitation. This blend is then pumped through orifice mixing spools (2) where the required amount of acid is added (3) and discharged into an open agitator (4). After sufficient settling the acid sludge is drawn off in separating kettles (5), and the acid treated oil is then pumped through another orifice mixing spool (6) where it comes in contact with a dilute solution of caustic soda (7) in sufficient quantity to neutralize all acid and acid compounds and discharged to another open agitator (8). The excess caustic soda is settled out and drawn off; the neutralized oil is then



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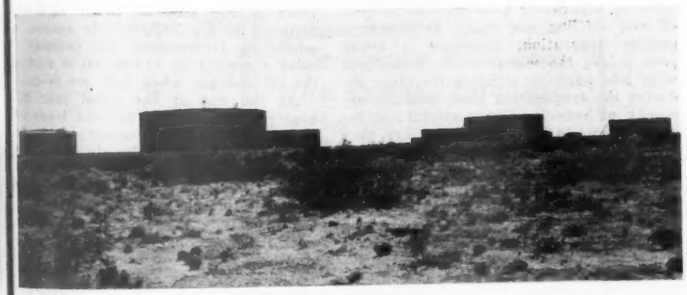

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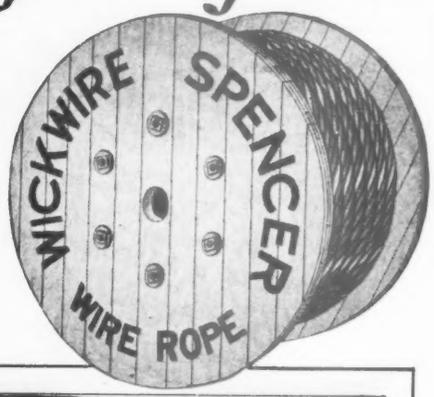

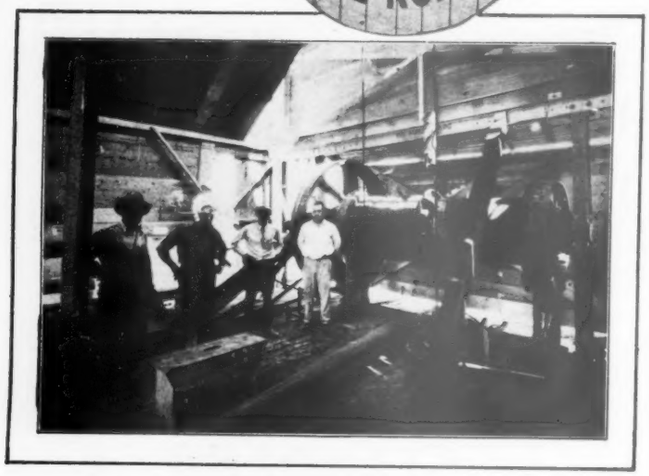

LEFT to right shows Jim Corbett, tool dresser; T. O. Walters, driller; E. E. Davis, assistant superintendent, and D. Baker of Noble, Olson, Baker Drilling Co. Mr. Baker says Wickwire Spencer Wire Rope gives better service in deep drilling than any other rope he has used. The well is 6,000 feet deep.

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pumped to the new percolation filter plant (9) where it is filtered continuously through 11-ton filters filled with 30-60 fuller's earth connected in series and filtered to about 4½ color. After filtering the solution is pumped to the heating and blending tank at the Sharples plant (10). It is usually found necessary at this point to add the required amount of naphtha to the filtered solution to raise the gravity. After sufficient agitation has taken place the mixture is slightly warmed to insure complete solution and then pumped to the chilling tanks (11) where the oil is gradually reduced in temperature.

During this process of chilling the oil must be agitated once every 15 minutes to keep the petrolatum from settling out and also to insure a uniform temperature. Each chilling tank has sufficient capacity to supply chilled oil to the centrifuges for a period of 24 hours. Assuming that chilling tank No. 1 is ready to be centrifuged tank No. 2 would have completed its 24 hours' chilling of the 48-hour period, whereas tank No. 3 would have just been filled with freshly filtered and blended stock solution from the heating and blending tank. Thus the operation would continue in such a manner that the centrifuges would be continuously supplied with chilled oil and that the oil would be continuously chilled through the desired period of time and at the desired temperature. The chilled oil after having passed through these stages and after being reduced in temperature to −10 degrees Fahrenheit is now ready to be passed to the centrifuges (12). The centrifugal force separates the wax-free oil in solution from the petrolatum while both are being discharged separately. In order to effect continuous discharge of the petroleum from the centrifuge a carrier liquid, heavier than either stock or petrolatum, is necessary to insure complete removal of the wax. Hot water serves as this carrying medium as it not only conveys the wax but also has sufficient temperature to melt the wax as rapidly as it is discharged from the machine. Both solutions flow by gravity to their respective rundown tanks. The wax-free oil solution (13) and the petrolatum solution (14) are separately charged to stills where the naphtha is distilled off and used again for further blending. After reduction, the former is now bright stock which is ready for the market and the latter is petrolatum which after treatment is the source of petroleum jellies and ointments or can be used directly for charging stock to cracking stills.

Advantages Over Old Methods

The advantages of this centrifugal force of separating over the old method of cold settling are many. It effects a greater separation, therefore a lower pour point; the operation is carried out with less naphtha solution therefore reducing the evaporation losses and the necessity of reducing less material; it reduces the yield of petrolatum being that the separation is more complete, a product of low value, and increases the yield of bright stock, a product of higher value. The quality of the bright stock is also much improved by the better separation, as it contains very little petrolatum, a fraction which has little or no lubricating value and one which offers very little resistance to heat as it breaks down very readily into lighter fractions which tend to make up the so-called crankcase dilutions and carbon.

These units were built for the purpose of this refinery to again refine Pennsylvania crudes, which will ultimately be made into Pennsylvania neutrals and Pennsylvania bright stock.

WEATHER CONDITIONS IMPORTANT FACTOR

(Continued from Page 154)

ing conditions that could hardly be improved upon with respect to probable effect on gasoline demand, and that of the current year reflecting conditions of a directly opposite nature, is sufficient to explain the dissatisfaction refiners experience when shipments during January of the two years are compared. Of course, retarded sales in a falling market are always an element for consideration even with an article such as gasoline where price recessions have but slight effect on ultimate consumption. We have no measure nor record of gasoline supply beyond the refineries. However, in my opinion, the weather of the present year offers sufficient explanation of the apparent decrease in demand.

LARGER CALIFORNIA MARKETERS SHOW LOSS

(Continued from Page 154)

months. This company's business showed an increase of 159 per cent.

Comparative figures for the first four of the smaller companies follow:

		Pct. gain or loss
Pan American	8,999,394	11 loss
Marine	7,943,669	21 loss
Hancock	7,369,947	389 loss
Rio Grande	5,709,647	159 loss

For all marketing companies in the State, the Board of Equalization figures indicate an increase in the 12 months of 1928 of 8.22 per cent over the previous year, or a total of 1,101,403,169 gallons in 1928. The percentage of increase is smaller than the 12.3 per cent increase of 1927 over 1926.

When data on sales in the first quarter of 1929 are available, the chances are that this trend may be reversed. January sales, it is understood, will show comfortable gains for the large companies, principally because of the new policy of leasing stations. Whether this development will continue in the remaining two months of the quarter remains to be seen.

GEOLOGICAL SURVEY REPORT ON PUBLIC LAND

On the public domain, says the Geological Survey, there are 30,000,000 acres of coal land which contain 200,000,000,000 tons of fuel for the future. There are 65 developed oil and gas fields with an annual production of 33,000,000 bbls. of oil. There are 4,000,000 acres of oil shale from which possibly 60,000,000 bbls. of oil can be extracted when high prices arrive to warrant the higher cost.

From the passage of the mineral leasing law in 1920 to June 30, 1928, 197,000,000 bbls. of oil has been produced from public lands under government lease or permit, of which more than 23,000,000 bbls. was produced in the fiscal year ended June 30, 1928.

Last year the oil and gas rights in a tract of 160 acres of public land were disposed of for $420,000, in addition to which the Government will probably receive a royalty of $1,000,000 or more on the oil and gas when they are produced.

At the end of the fiscal year 1928 nearly 22,000 mineral permits, leases and licenses were under supervision by the Geological Survey. Certain supervisory work in connection with the naval petroleum reserves is done by the survey on behalf of the Bureau of Engineering, Department of the Navy, and similar work in connection with some Indian reservations is done on behalf of the Office of Indian Affairs. The royalties from oil produced on naval petroleum reserves and Indian lands for the year ended June 30, 1928, amounted to over $9,000,000.

The unappropriated public lands amount to 194,000,000 acres, equal in area to 14 of the smaller states. In addition to this the mineral rights on about 19,000,000 acres of land patented under the stock-raising law have been retained. Rights to specific minerals have been retained in 11,750,000 acres.

FRENCH REFINING MERGER

An agreement between the Mines de Lens, one of the largest French coal-producing companies, and the Societe Petrofina, principal importer of Russian petroleum has been reached for the purpose of reorganizing the Petroleum Refinery of the Nord and to study the present status of synthetic petroleum with a view to using the coal of the former company.

Photo: Underwood & Underwood

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NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE
Week Ended February 6

Gray County

St. Clair Oil Co.'s No. 1 W. P. Dial, 330 feet south and west of the NE cor. of the SE of Section 10, Block 25, H.& G.N. The Texas Company's No. 2 S. W. McLarty-B, at the center of the J. M. Rose Survey. Same company's No. 10 G. H. Saunders, 330 feet north and west of the SE cor. of the W half of the J. G. Eustis Survey.

Moore County

Devonian Oil Co.'s No. 1-A J. T. Sneed, Jr., 330 feet north and 2,335 feet west of the SE cor. of the south 160 acres of the north 320 acres of the M. Robinson Survey. Phillips Petroleum Co.'s No. 1 W. H. Taylor, 330 feet north and east of the SW cor. of the E half of the NW of Section 244, Block 3-T, T.&N.O.

Wheeler County

Clark and others' No. 4 J. D. Purcell, at the center of the SW of the SW of Section 51, Block 17, H.&G.N.

NORTH CENTRAL AND WEST TEXAS
Week Ended February 6

Archer County

Atlantic Oil Producing Co. & Johnston's No. 1 R. O. Prideaux, 150 feet north and 450 feet west of the SE cor. of the west 50 acres of the south 100 acres of Section 1,860, T.E.&L. Clark & King Royalty Co.'s No. 1 F. R. Smith, 1,083.3 feet north and 150 feet east of the SW cor. of Section 1, G. P. Meade Subdivision, 55 Pasture. Freeman-Grebin and others' No. 3 A. M. Hennig, 150 feet north and west of the SE cor. of the south 60 acres of Section 21, G. P. Meade Subdivision, L. M. Pasture. Gilliland & Rosser's No. 1 W. R. Dupriest, 450 feet north and 150 feet west of the SE cor. of Section 2,489, T.E.&L. Magnolia Petroleum Co.'s No. 1 A. Llewellyn and others, 2,150 feet south and 3,200 feet west of the NW cor. of the John Llewellyn Survey No. 16, A-256, being 150 feet north and west of the SE cor. of their 50-acre lease.

Brown County

American-Maracaibo Co.'s No. 4 J. L. Cross, 150 feet south and west of the NE cor. of their 34.5-acre lease out of the James Kinney Survey No. 624. Cranfill & Reynolds' No. 1 H. J. Marr, 170 feet south and 420 feet east of the NW cor. of the H. P. Tuggle Survey No. 62. Cranfill-Reynolds & Bradstreet's No. 5 J. B. Eubanks-B, 958 feet south and 1,658 feet west of the NE cor. of the J. B. Eubanks 1.278-acre tract out of the Robert Mitchell Survey No. 141.

Culberson Brothers' No. 1 A. E. Smoot, 150 feet north and east of the SW cor. of the Albert Scott Survey A-1,297. Humble Oil & Refining Co.'s No. 10 Hamp Byler, 150 feet north and 511 feet west of the SE cor. of their lease out of Section 43, T.&N.O. K. E. Liebhart's No. 1 J. R. Lewis, 200 feet north and west of the SE cor. of the west 40 acres of the south 100 acres of the north 250 acres of the J. R. Lewis 400-acre tract out of the James Kinney Survey No. 624. Love & Michael's No. 1 Graham Estate, 1,903 feet north and 1,467 feet west of the SE cor. of the J. Brown Survey No. 137. Mook-Texas Oil Co. & Wakefield's No. 6 J. W. Newton, 1,200 feet south and 800 feet west of the NE cor. of the J. W. Newton 220-acre tract out of the William B. Travis Survey No. 148. Phillips Petroleum Co.'s No. 2 E. DeBusk, 2,648 feet north and 2,693 feet west of the SE cor. of the E. Bell Survey No. 648. Same company's No. 3 E. DeBusk, 666 feet north and west of the SE cor. of the E. Bell Survey No. 648. Syndicate Oil Co.'s No. 4 A. L. Curry, 550 feet south and 200 feet east of the NW cor. of their lease out of the E. L. Betts Survey A-70. A. D. Bruce's No. 5 A. B. Shields, 1,650 feet east and 460 feet north of the SW cor. of the J. C. Brown Survey A-74. Gore & Brown's No. 3 W. H. Mayes, 150 feet north and 1,369 feet east of the SW cor. of the north 114 acres of the W. H. Mayes 255-acre tract out of the J. M. Ross Survey No. 609. J. M. Green and others' No. 2 Hill, 150 [illegible] north and 1,050 feet east of the SW cor. of the A. C. Lovelace Survey A-615. J. T. Green and others' No. 1 J. L. Riordan, 189 feet south and 630 feet west of the NE cor. of the J. L. Riordan 200-acre tract out of the C. B. Jennings Survey No. 353. George W. McClung's No. 2 R. Smith, 150 feet southwest of the NE line and 1,850 feet southeast of the NW line of the B. Smith 150-acre tract out of the John S. Thom Survey No. 53. Paramount Oil Royalty Co., Inc., No. 3 W. R. Mayes, 600 feet north and 1,050 feet west of the SE cor. of the W. H. Mayes 255-acre tract out of the J. M. Ross Survey No. 609.

Brewster County

Johnson & Weekley's No. 1 Jackson & Harmon, at the center of Section 104, Block 10, G.H.&S.A.

Callahan County

Grass Roots Oil Co.'s No. 8 G. W. Klutts, 150 feet south and 1,050 feet east of the NW cor. of Section 43, Comal County School Land. O. H. Harwell and others' No. 1 G. C. Osborn, 150 feet north of the middle of the south line of the SW of Section 18, Block 5, S.P.R.R. Moutray Oil Co.'s No. 13 P. G. Hatchett, 150 feet north and 1,010 feet west of the SE cor. of the NW of the NW of Section 29, Deaf & Dumb Asylum Land. Reiter-Foster Oil Corp.'s No. 8-A P. G. Hatchett, 450 feet north and 300 feet west of the SE cor. of the SE of the SW of Section 24, Deaf & Dumb Asylum Land. Same company's No. 19 P. G. Hatchett, 410 feet south and 150 feet west of the NE cor. of the SE of the SW of Section 24, Deaf & Dumb Asylum Land. Same company's No. 21 P. G. Hatchett, 410 feet south and 710 feet west of the NE cor. of the SE of the SW of Section 24, Deaf & Dumb Asylum Land. The Texas Company's No. 18 P. G. Hatchett, 150 feet south and 740 feet west of the NE cor. of the SW of the NW of Section 29, Deaf & Dumb Asylum Land. Same company's No. 19 P. G. Hatchett, 150 feet north and west of the SE cor. of the NE of the NE of Section 30, Deaf & Dumb Asylum Land. Warren & West's No. 1 P. G. Hatchett, 150 feet north and east of the SW cor. of the NW of the SE of Section 19, Deaf & Dumb Asylum Land.

Clay County

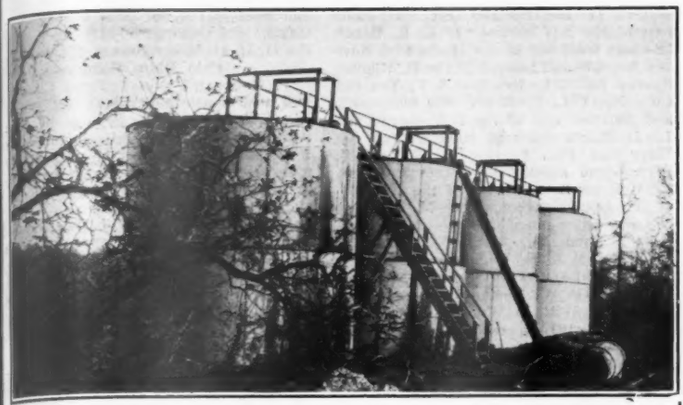
R. T. Belcher and others' No. 1 H. E. Evans and others, 150 feet north and west of the SE cor. of Section 6, Parker County School Land, A-374. Lone Star Gas Co.'s No. 27 E. L. Holloway, 150 feet south and east of the NW cor. of Section 18, Parker County School Land, A-374. Mid-Continent Holding Co.'s No. 1 J. D. Stine and others, 150 feet north and east of the SW cor. of Section 7, Parker County School Land, A-374. R. T. Belcher and others' No. 1 A. Culbertson, 150 feet north and west of the SE cor. of the west 20 acres of the north 40 acres of the south 80 acres of the A. Culbertson 200-acre tract out of the K. McKenzie Survey A-328.

Coke County

Cates & Dennis' No. 2 J. R. Mims, 2,340 feet north and west of the SE cor. of Section 8, Block W, T.&P.

Coleman County

Chestnut & Smith and Eastland Oil Co.'s No. 6 J. P. Morris, 150 feet south and east of the NW cor. of Lot 24, William Webber Survey No. 722. Eastland Oil Co.'s No. 1 Isaac Keeney, 250 feet north and east of the SW cor. of the north 94 acres of the west 194 acres of the I. Keeney 374-84-acre tract out of the R. Cochran Survey No. 269. Roth & Faurot's No. 1 J. W. Golson, 250 feet north and west of the NE cor. of the J. A. Lewis 134.6-acre tract out of the Coleman County School Land No. 57, and located in the A. Murdock Survey No. 738. E. J. Cunningham and others' No. 1 S. H. Campbell Estate, 150 feet south and east of the NW cor. of the south 67 acres of Lot 14, South Subdivision, Manuel Martinez Survey No. 751. Foster



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& Midsun Oil Corp.'s No. 2 L. C. Haas, 3,686 feet south and 1,200 feet west of the NE cor. of Section 71, Block 7, G.H.&H.

Prairie Oil & Gas Co.'s No. 1 A. J. and C. H. Reaves, 150 feet north and east of the NW cor. of the L. L. Baker 320-acre tract out of the M. A. Fisk Survey No. 630 and located in the H. Rhodes Survey No. 631. Rex-Tex & Py-Tex Oil Co.'s No. 1 L. L. Baker, 450 feet south and 150 feet east of the NW cor. of the L. L. Baker 320-acre tract out of the Mary Ann Fisk Survey No. 630. A. T. Strong and others' No. 1 M. J. Clark, 150 feet south and west of the NE cor. of the west 80 acres of the M. J. Clark 168-acre tract out of the Caldwell County School Land No. 249. Watchorn Oil Co.'s No. 1 J. F. Vanderford, 150 feet south and 750 feet east of the NW cor. of the J. F. Vanderford 144-acre tract out of the William Woolsey Survey No. 294. T. W. Weatherred and others' No. 1 W. S. Ford, 300 feet south and east of the NW cor., of the W. S. Ford 160-acre tract out of the Bonds & Sanders Survey No. 92.

Cooke County

Pure Oil Co.'s No. 5 J. C. Embry, 150 feet north and 200 feet east of the SW cor. of their 80-acre lease out of the T. J. Moss Survey A-736.

Crockett County

W. A. Moncrief and others' No. 2 Todd, at the center of Section 53, Block UV, G.C.&S.F. Same company's No. 3 J. S. Todd, at the center of Section 55, Block UV, G.S.&S.F. Tidal Oil Co.'s No. 1 W. W. Weatherred, 5,055 feet southwest of the NE line and 330 feet southeast of the NW line of Section 30, Block 31, H.&T.C.

Eastland County

J. Hamon, Jr., No. 1 J. W. Turner-B, 150 feet south and east of the NW cor. of the NE of Section 3, Block 4, H.&T.C. Hoffer Oil Corp.'s No. 1 Maggie Gray, 660 feet north and west of the SE cor. of the NE of Section 485, S.P.R.R.

Erath County

Boon and others' No. 1 W. M. Robertson, 1,000 feet north and 250 feet east of the SW cor. of the Robert Woods Survey. L. P. Cowan and others' No. 1 R. A. Ray, 300 feet north and 600 feet west of the SE cor. of the B.B.B.&C. Survey No. 52. Kelsey and others' No. 1 J. F. Lowe, 600 feet south of the NW line and 1,000 feet west of the E line of the J. W. Brown Survey.

Fisher County

Mesa Production Co.'s No. 1 A. J. Griffin, 849 feet north and 465 feet east of the NE cor. of Section 20, Bastrop County School Land No. 322 and located in Section 29, Bastrop County School Land No. 323.

Grayson County

C. T. McGregor & B. E. Jones' No. 1 Coleman & Peters, 355 feet south and 818 feet west of the NE cor. of the Coleman & Peters 30-acre tract out of the William Wright Survey A-3,1311.

Howard County

American Maracaibo Co.'s No. 5 W. R. Settles-C, 330 feet south and west of the NE cor. Section 6, Block 32, T-2-S, T.&P. Survey. Marland Production Co.'s No. 3 H. R. Clay-G, 786 feet north and 1,570 feet east of the SW cor. Section 126, Block 29, W.&N.W.R.R. Survey. Midwest Exploration Co.'s No. 3 H. R. Clay-C, 330 feet north and 990 feet west of the SE cor. Section 138, Block 29, W.&N.W.R.R. Survey. Moody Oil Corp.'s No. 10 Dora Roberts-E, 2,310 feet south and 280 feet west of the NE cor. Section 136, Block 29, W.&N.W.R.R. Survey. Schermerhorn Oil Co.'s No. 5 Dora Roberts-A, 1,650 feet south and 2,250 feet west of the NE cor. Section 137, Block 29, W.&N.W.R.R. Survey.

Jones County

Marland Production Co.'s No. 7 J. C. Mason, 330 feet south and 990 feet west of the NE cor. Section 18, Block 19, T.&P. Survey. Roeser-Pendleton and Landreth Production Co.'s No. 4 J. H. Grayson-A, 315 feet south and 990 feet west of the northeast corner of their lease out of Section 13, Block 19, T.&P. Survey.

Loving County

Lockhart & Co.'s No. 1 Hubbard heirs, 2,640 feet southwest of the northeast line and 660 feet southeast of the northwest line of Section 84, Block 33, H.&T.C. Survey.

Montague County

C. Bell and others' No. 1 R. L. Gaston and C. L. Osborne, 150 feet south and west of the northeast corner of the Gaston and Osborne 50-acre tract out of the D .D. D. Baker Survey No. 18, A-34.

Palo Pinto County

T. G. Shaw's No. 1 J. A. Chestnut, 400 feet south and 1,500 feet east of the NW cor. S half, Section 40, Block A, T.&P. Survey. G. A. Schnaufer's No. 1 Ed Costello, 976 feet south and 2,010 feet west of the northeast corner of the W. H. Eggleston Survey, A-691.

Pecos County

K. A. Crowley's No. 1 R. G. Heinz estate, 2,490 feet south and west of the NE cor. Section 589, G.C.&S.F. Survey. Perren et al No. 1 H. J. Eaton, 150 feet southeast of the northwest line and 150 feet southwest of the northeast line of Section 27, Block 3, H.&T.C. Survey.

Reagan County

Big Lake Oil Co.'s No. 159 University Land, 2,090 feet north and 920 feet west of the SE cor. Section 1, Block 2, University Land. Same company's No. 160 University Land, 1,320 feet north and 1,060 feet west of the SE cor. Section 2, Block 2, University Land. Same company's No. 161 University Land, 1,720 feet north and east of the SW cor. Section 1, Block 2, University Land. Same company's No. 162 University Land, 920 feet south and 1,720 feet west of the NE cor. Section 36, Block 1, University Land. Big Lake Oil Co.'s No. 163 University Land, 1,930 feet south and 1,720 feet west of the NE cor. Section 1, Block 2, University Land. Same company's No. 164 University Land, 2,240 feet north and 400 feet east of the SW cor. Section 12, Block 2, University Land. Same company's No. 165 University Land, 2,240 feet north and east of the SW cor. Section 12, Block 2, University Land. Same company's No. 166 University Land, 920 feet south and 2,240 feet east of the NW cor. Section 12, Block 2, University Land.

Reeves County

Southern Crude Oil Purchasing Co.'s No. 1 Kloh & Rumsey, 2,310 feet north and west of the SE cor. Section 23, Block 51, Township 8, T.&P. Survey.

Shackelford County

L. C. Collins and others' No. 1 R. A. Elliott, 600 feet south and east of the NW cor. Section 13, Bayland Orphan Asylum Land. Crabb & McNeil's No. 2 J. B. Matthews, 450 feet south and 150 feet east of the NW cor. NE SW, Section 29, Block 10, E.T.R.R. Survey. Cranfill & Reynolds' No. 2 Diller Brothers, 1,772 feet south and 2,022 feet east of the NW cor. Section 5, Block 10, E.T.R.R. Survey. Earl & Dull's No. 5 J. B. Matthews, 200 feet south and 150 feet west of the NE cor. SE NE, Section 32, Block 10, E.T.R.R. Survey. Ohio-Texas Oil Co.'s No. 13 J. B. Matthews, 200 feet south and 150 feet east of the NW cor. SW NW, Section 29, Block 10, E.T.R.R. Survey. Petroleum Producers Co.'s No. 3 W. Y. and R. A. Davis, 150 feet north and east of the SW cor. NE NE, Section 19, Block 13, T.&P. Survey. Roeser & Pendleton's No. 35 W. I. Cook-A, Section 61, 1,523 feet north and 870 feet east of the SW cor. SE, Section 61, Block 10, E.T.R.R. Survey. Same company's No. 36 W. I. Cook-A, Section 61, 1,525 feet north and 500 feet west of the SE cor. SW, Section 61, Block 10, E.T.R.R. Survey. Same company's No. 11 W. I. Cook-B, Section 61, 510 feet south and east of the NW cor. SW SW, Section 61, Block 10, E.T.R.R. Survey. Same company's No. 8 W. I. Cook-A, Section 83, 1,645 feet south and 635 feet west of the NE cor. SE, Section 83, Block 10, E.T.R.R. Survey. Tannehill Oil Co.'s No. 1 E. E. Whitney, 1,380 feet southeast of the northwest line and 780 feet southwest of the northeast line of Section 803, T.E.&L. Survey.

Stephens County

C. M. Root and others' No. 2 C. M. Hittson, 550 feet north and 600 feet west of the SE cor. SE, Section 6, Lunatic Asylum Land. Cooper & Caprito's No. 1 H. Compton, 300 feet north and east of the SW cor. Section 8, Block 7, T.&P. Survey. Lone Star Gas Co.'s No. 1 R.

W. Brooks, 330 feet east of the southwest corner of the R. Elliott 546-acre tract out of Section 55, Block 7, T.&P. Survey, and located in Section 54. Lone Star Gas Co.'s No. 1 C. R. Compton, 2,-695 feet north and 1,887 feet west of the most northerly SE cor. Section 20, Block 7, T.&P. Survey. Same company's No. 2 Ross Elliott, 1,650 feet north and 2,900 feet east of the southwest corner of the Ross Elliott 546-acre tract out of Section 55, Block 7, T.&P. Survey.

Sutton County

L. G. Priest's No. 1 Allison, 1,320 feet east of the SW cor. Section 52, Block A, G.W.T.&P. Survey.

Wichita County

American Refining Co. Properties' No. 1 D. E. Hooks, 150 feet north and 450 feet west of the southeast corner of the north 34 acres of the south 139 acres of the D. E. Hooks 232-acre tract out of the R. J. Scott Survey, A-255. John W. Caldwell's No. 8 Allen & Kemp, 200 feet south and west of the northeast corner of the south half of Lot 10, Block 26, Kemp Wichita Valley Land. Same company's No. 9 Allen & Kemp, 500 feet south and west of the northeast corner of the south half of Lot 10, Block 26, Kemp Wichita Valley Land. Same company's No. 10 Allen & Kemp, 500 feet south and west of the northeast corner of the south half of Lot 10, Block 26, Kemp Wichita Valley Land. Same company's No. 11 Allen & Kemp, 150 feet south and east of the northwest corner of the south half of Lot 10, Block 26, Kemp Wichita Valley Land. Hammon & Garrett's No. 1 S. H. McCarty-E, 150 feet south and east of the northwest corner of the east 17 acres of the north 117 acres of the W. R. Eaves Survey, A-477. Humble Oil & Refining Co.'s No. 14 W. H. Taylor, midway north and south and 450 feet west of the east line of Block 81, Kemp Wichita Valley Land. F. Whitmeyer's No. 1 D. E. Hooks, 150 feet south and west of the northeast corner of the south 105 acres of the D. E. Hooks 232-acre tract out of the R. J. Scott Survey, A-255.

Winkler County

Prairie Oil & Gas Co.'s No. 1 W. F. Scarborough, 990 feet north and 1,650 feet west of the SE cor. Section 1, Block C-22, School Land. Skelly Oil Co.'s No. 2 T. G. Hendricks-C, 1,320 feet north and 2,310 feet west of the SE cor. Section 10, Block B-12, School Land. Southern Crude Oil Purchasing Co.'s No. 5 Ida Hendricks T-67-F, 330 feet north and 990 feet west of the SE cor. Section 33, Block B-5, School Land. Same company's No. 6 Ida Hendricks 3-T-67-A, 990 feet south and 1,650 feet west of the NE cor. Section 4, Block B-12, School Land.

Wilbarger County

Easter Oil Co.'s No. 3 W. T. Waggoner-A, 205 feet south and west of the NE cor. Section 26, Block 4, H.&T.C. Survey. Fain-McGaha Oil Corp.'s No. 8 W. T. Waggoner-L, 2,350 feet south and 150 feet east of the northwest corner of their lease "L" out of Section 31, Block 4, H.&T.C. Survey. Same corporation's No. 9 W. T. Waggoner-L, 205 feet north and west of the southeast corner of their lease "L" out of Section 31, Block 4, H.&T.C. Survey. C. F. Kolp's No. 3 W. T. Waggoner-G, 150 feet north and 830 feet east of the SW cor. N half SE SE, Section 18, Block 4, H.&T.C. Survey. Lewis Production Co.'s No. 9 W. T. Waggoner, 150 feet south and west of the NE cor. SW NE, Section 18, Block 4, H.&T.C. Survey. Phillips Petroleum Co.'s No. 4 W. T. Waggoner (Norwood), 150 feet south and east of the NW cor. NE SW, Section 18, Block 4, H.&T.C. Survey. Phillips Petroleum Co.'s No. 1 W. T. Waggoner-DD, 300 feet south and 467 feet west of the northeast corner of the west 39.5 acres of the east 75.9 acres of the south 165.95 acres of Section 42, Block 4, H.&T.C. Survey. Phillips Petroleum Co.'s No. 21 W. T. Waggoner-NN, 940 feet south and 1,100 feet west of the northeast corner of their 177-acre lease "NN" out of Section 42, Block 4, H.&T.C. Survey. Same company's No. 6 W. T. Waggoner-OO, 330 feet south and east of the NW cor. SW, Section 45, Block 4, H.&T.C. Survey. Same company's No. 4 W. T. Waggoner-SS, 330 feet north and east of the SW cor. SW SE, Section 43, Block 4, H.&T.C. Survey. R. R. Robertson and others' No. 3 W. T. Waggoner-F, 150 feet north and 2,790 feet west of the NW cor. Section 5, Block 5, H.&T.C. Survey and located in the Thomas D. Purnell Survey. Staley-Wynne & Co.'s No. 2 W. T. Waggoner-G, 150 feet south and 450 feet east of the NW cor. W half SE, Section 32, Block 4, H.&T.C. Survey. The Texas Company's No. 17 W. T. Waggoner-E, 205 feet south and 580 feet west of the NE cor. Section 25, Block 4, H.&T.C. Survey.

Young County

L. G. Bradstreet Co.'s No. 2 L. A. Snider, 750 feet south and 510 feet east of the northwest corner of the Robert Wilson Survey, A-1,276. Same company's No. 3 L. A. Snider, 450 feet south and east of the northwest corner of the Robert Wilson Survey, A-1,276. Fain-McGaha Oil Corp.'s No. 1 R. Campbell-I, 50 feet north and 1,000 feet west of the SE cor. Section 1,383, T.E.&L. Survey. Holbrook & Wood's No. 5 S. E. Watson-A, 450 feet south and west of the NE cor. SE, Section 22, Young County School Land, A-1,284. Panhandle Refining Co. and others' No. 13 H. O. Prideaux-C, 150 feet north and east of the southwest corner of their 105-acre lease "C" out of the A. Rohus Survey, A-240. Pennell and others' No. 2 L. R. Drum, 450 feet north and 150 feet east of the southwest corner of the L. R. Drum 50-acre tract out of the S. Tynes Survey A-274. Pennell & Bratcher's No. 1 L. R. Drum, 1,510 feet south and 590 feet west of the northeast corner of the L. R. Drum 80-acre tract out of the S. Tynes Survey, A-274. Robertson Drilling Co.'s No. 1 F. M. Gilmore, 150 feet south and 1,320 feet east of the NW cor. Section 14, Young County School Land, A-1,284. Stevens & Streeter's No. 1 C. F. Vardy, 1,400 feet north and 2,290 feet west of the SE cor. Section 350, T.E.&L. Survey. E. W. Walton and others' No. 2 E. R. Prideaux, 730 feet south and 450 feet east of the northeast corner of the J. C. C. Edwards 100-acre tract out of the S. Tynes Survey, A-274, and located on the E. R. Prideaux 126-acre tract. Wise & Jackson and others' No. 5 R. J. Calvin, 150 feet south and 550 feet east of the northwest corner of the R. J. Calvin 200-acre tract out of the A. Rohus Survey, A-240. Wootten & Reed's No. 1 H. W. Drum, 2,188 feet south and 708 feet east of the northwest corner of the S. Tynes Survey, A-274.

Corrected Locations

In Brown County: Lloyd Oil Corp.'s No. 13 J. C. Collier, 810 feet east of the Fort Worth & Rio Grande right of way and 150 feet south of the north line of the J. C. Collier 320-acre tract out of the Hrs. W. A. Smith Survey, No. 139. Same corporation's No. 14 J. C. Collier, 810 feet east of the Fort Worth & Rio Grande right of way and 450 feet south of the north line of the J. C. Collier 320-acre tract out of the Hrs. W. A. Smith Survey, No. 139.

In Callahan County: J. B. Weigel and others' No. 1 Linville Hrs., 150 feet north and 650 feet east of the southwest corner of the Linville Hrs. tract out of the W. G. Anderson Survey, No. 777.

In Coleman County: R. V. Whiteside's No. 3 C. A. and W. L. Stafford, 1,300 north feet and 1,150 west of the southeast corner of the C. A. and W. L. Stafford 522.5-acre tract out of the Buenita Alderata Survey No. 273. Forster Brothers' No. 1 W. C. Sharp, 1,050 feet north and 5,655 feet east of the SW cor. Section 91 Bonds and Sanders Survey, being 1,050 feet north and 150 feet east of the southwest corner of the W. C. Sharp 195-acre tract. Dunnigan & McCready's No. 4 M. B. Rice, 1,050 feet north and 4,546 feet east of the southwest corner of Bonds & Sanders Survey, No. 91, being 1,050 feet north and 380 feet east of the southwest corner of the M. B. Rice 92.5-acre tract. Dunnigan & McCready's No. 3 M. B. Rice, 1,800 feet north and 4,796 feet east of the southwest corner of the Bonds & Sanders Survey, No. 91, being 1,800 feet north and 630 feet east of the southwest corner of the M. B. Rice 92.5-acre tract. Dunnigan & McCready's No. 2 M. B. Rice, 1,050 feet north and 5,066 feet east of the southwest corner of

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the Bonds & Sanders Survey, No. 91, being 1,050 feet north and 890 feet east of the southwest corner of the M. B. Rice 92.5-acre tract. Dunnigan & McCready's No. 1 M. B. Rice, 1,300 feet north and 4,796 feet east of the southwest corner of the Bonds & Sanders Survey, No. 91, being 1,300 feet north and 630 feet east of the southwest corner of the M. B. Rice 92.5-acre tract. Dunnigan & McCready's No. 1 L. M. Newman, 540 feet north and 360 feet east of the southwest corner of the east 92.5 acres of the west 286.1 acres of the Bonds and Sanders Survey, No. 91. S. B. Owens' No. 1 W. T. Burns, 5,416 feet north and 7,736 feet east of the southwest corner of the Asa Wickson Survey, No. 168.

In Hudspeth County: Rio Grande Oil Co.'s No. 1 Western States Oil Co., 150 feet north and west of the SE cor. NW SE, Section 5, Block 21, Public School Land.

In Jones County: Phillips Petroleum Co.'s No. 3 H. B. Vestal, 330 feet north and 990 feet west of the SE cor. NW, Section 18, Block 19, T.&P. Survey.

In King County: Huff Oil Co.'s No. 1 Mary A. Martin, C NE, Section 174, Block F, H.&T.C. Survey.

In Reagan County: Big Lake Oil Co.'s No. 2-C University Land, 625 feet south and 250 feet west of the NE cor. Section 1, Block 2, University Land. Same company's No. 1-C University Land, 2,579 feet south and 250 feet west of the NE cor. Section 1, Block 2, University Land.

In Reeves County: Robert Penn and others' No. 1 E. G. Bowles, 330 feet south and west of the NE cor. Section 36, Block 50, Township 8, T.&P. Survey.

INTERNATIONAL'S OUTPUT IN COLOMBIA AND PERU

December production of International Petroleum Co., Ltd., in Colombia, totaled 1,695,040 bbls., against 1,651,708 bbls. in November and 1,705,000 in December, 1927. Ten wells were completed in December, with average initial output of 769 bbls., and 15 drilling rigs were in operation. Crude shipments from Cartagena in December were 1,445,106 bbls., against 1,549,088 in November and 1,879,415 in December, 1927.

The company's crude output in Colombia in 1928 totaled 19,895,677 bbls., against 15,002,154 in 1927. Average initial production of 115 wells completed last year was 843 bbls., against an average of 1,139 bbls. for 86 wells completed in 1927. An average of 15 rigs were operated in 1928 against 14 in the preceding year.

Crude shipments totaled 17,989,504 bbls. in 1928, compared with 13,605,448 in the preceding year.

International completed 16 wells in Peru in December with average initial output of 201 bbls. and an average of 55 drilling rigs were in operation. Production in December totaled 887,611 bbls., an average of 28,632 bbls. daily, against average of 27,740 daily in November. Production in January averaged 27,003 bbls. daily.

Production in 1928 in Peru totaled 9,503,720 bbls., against 7,768,139 the year before, and 147 producing wells were completed last year with initial production of 218 bbls., compared with average of 189 bbls. for the 124 producing wells completed in 1927. Shipments in 1928 were 3,823,231 bbls., against 3,270,150 the year before.

Combined production by International last year in Colombia and Peru totaled 29,399,397 bbls., compared with 22,770,293 in the previous year.

WITHDRAWS FROM COLOMBIA

SAN FRANCISCO, Calif., Feb. 16.—Standard Oil Co. of California subsidiary, Latin-American Petroleum Co., has withdrawn from Colombia where four wells have been drilled since the fall of 1922, in the municipalities of Carmen and San Jacinto, in the province of Bolivar. Only slight traces of oil were found. Crews are being brought back to the United States.

NEW BRITISH COMPANY FOR NORTH VENEZUELA

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Feb. 16.—A important new British petroleum company, the Tocuyo Oilfields of Venezuela, Ltd., has recently been formed in London and has begun operations for the purpose of developing the El Mene area of the holdings of the North Venezuelan Petroleum Co., Ltd., in the State of Falcon.

The area to be developed forms part of a 50-year concession dated July 1907, granted by the Venezuelan government to Francisco Jimenes Arrais, in 1920 the North Venezuelan Petroleum Co. was formed to acquire this concession and for a number of years spent considerable sums in exploration, geological investigations and improvements.

When the original working capital of this company was exhausted it entered into an agreement with the Central Mining & Investment Corp., Ltd., the Rand Mines, Ltd., and the Trinidad Leaseholds, Ltd., whereby these three companies undertook to finance the North Venezuelan and advance the sum of £500,000 for further exploration and test drilling. Last October it was decided to create a subsidiary company, the Tocuyo Oilfields of Venezuela, Ltd., with an authorized capital of £2,500,000. Other financing has placed this company in a position to develop its holdings. It has acquired rights over 85,000 acres at El Mene. There appears to be an anticline of some 22 miles which traverses the property for 10 miles. H. G. Kugler, chief geologist of the company, has stated he believes there is in El Mene de Acosta an area of 17,500 acres, about one-fourth of the total, with a geologic formation proved to contain oil in commercial quantities. The balance of the area acquired, he says, is looked upon as favorable for oil and a deep drilling program will be begun.

The North Venezuelan Petroleum Co. has already undertaken drilling operations at 11 points. Three wells yielded oil in commercial quantities: One gave at 1,870 feet a flow of 400 bbls. a day; a second gave 100 bbls. a day at a depth of 850 feet, and the third came in with an initial flow of 175 bbls. a day at 675 feet. Two wells were abandoned because of technical difficulties, one of which, after reaching 3,686 feet in the upper Guayaval silt beds, gave indications of oil and gas. Two wells yielded oil, but not in commercial quantity. At the time of the sale to the Tocuyo Oilfields, Ltd., four wells were being drilled. The active development program includes the drilling of about 100 wells.

The oil which has so far been found in the productive wells is reported to be of excellent quality and to compare favorably with the highest grade oil obtained in Venezuela. Its average specific gravity was about 0.837 (37 degrees Baume).

Other developments, besides drilling operations, include the construction of a pipe line of some 27 miles and a narrow-gauge railway from the fields to the nearest deep-water harbor, probably Chichiriviche; the installation of a power plant, storage tanks and port facilities, and the erection of staff houses and a small hospital.

O. P. BOGGS DEAD

BARTLESVILLE, Okla., Feb. 16.—O. P. Boggs, 81 years old, passed away at his home here. Mr. Boggs was a pioneer Mid-Continent oil operator and previous to his coming here took a prominent part in the development of eastern fields. He was a producer and a drilling contractor in the Bradford Field in the busiest years of that area.

Mr. Boggs was unable to attend the meeting of veteran oil men at the International Petroleum Exposition in 1928, but was made a member of the organization of old-timers formed on that occasion. Mr. Boggs was widely known among oil men both in the East and Mid-Continent and was held in high regard.

Mr. Boggs owned an interest in the Federal Machine Co. and the Boggs Drilling Co., operated by his sons, E. O. Boggs and Clyde Boggs, of Wichita, Kans.

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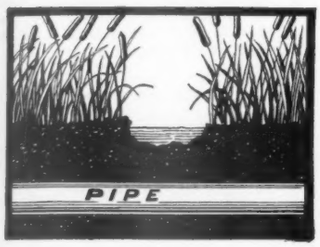

Alkali Marsh

Thus, part of your proposed line may run through a heavy marsh—black soil, strong with alkali. Here, the maximum amount of protection is needed.

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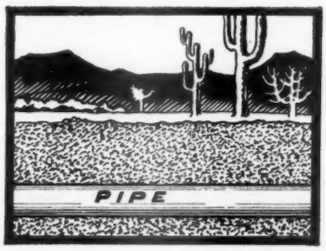
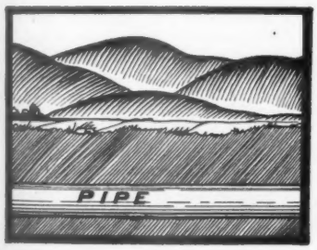
Another stretch of the same line may run through a desert soil where practically no moisture exists. Obviously the kind of protection needed for the marsh, would not be necessary for this section.





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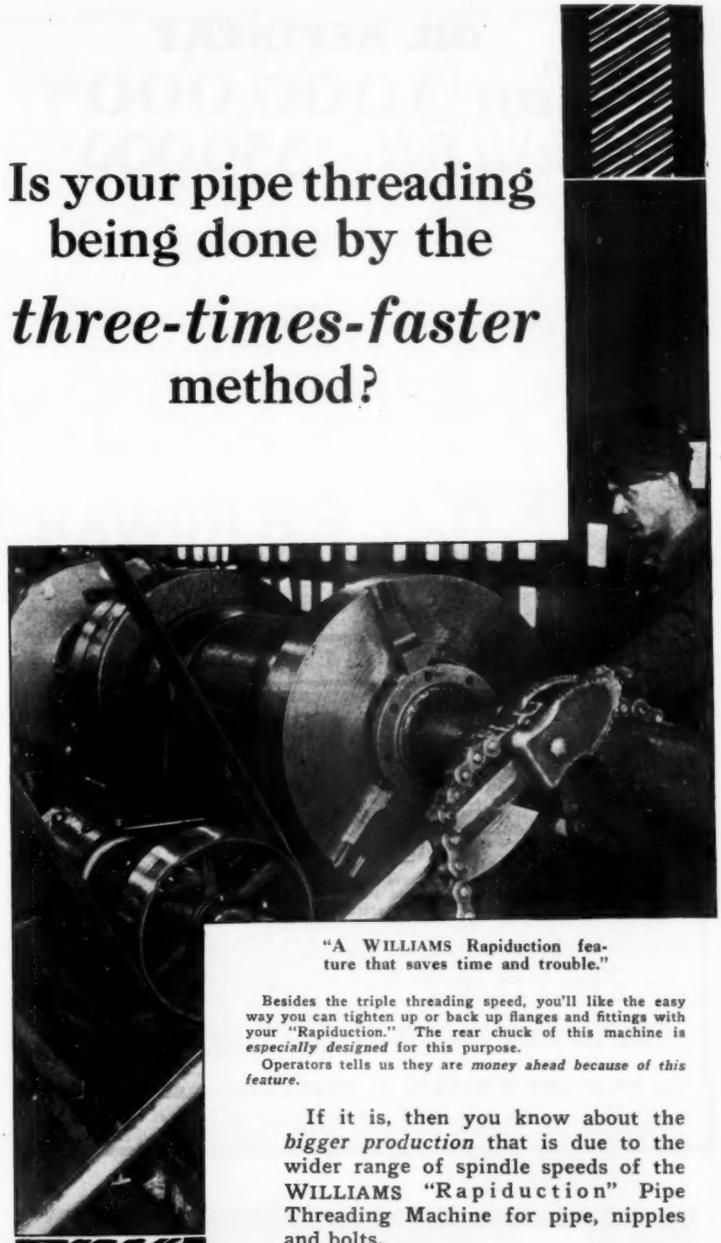

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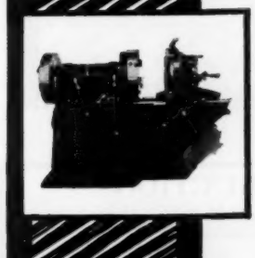

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STEEL INDUSTRY WAITS DEFINITE DEVELOPMENTS

By B. E. V. Luty

PITTSBURGH, Pa., Feb. 18.—A report from Youngstown states that the pipe mills there, which constitute a considerable percentage of the total pipe industry, are at their lowest rate in six months, averaging between 50 and 60 per cent. Some of the pipe mills are operating better than others, but only on account of their having old orders which they are completing. Seamless tube mills continue to do well, at about 80 per cent on an average.

Production of Bessemer and open-hearth steel ingots in January is reported at 4,489,391 gross tons, representing 88.20 per cent of capacity, which is in line with estimates made during the month. Other ingot production, in electric and crucible ingots, runs about 1 per cent of the Bessemer and open-hearth, and is reported annually but not monthly. A revised figure for December shows 85.29 per cent for that month. The increase, December to January, was smaller than the usual seasonal increase. Some comment is made that the usual increase could not be expected because December production was so high, but, if so, the notion must be renounced that the general pace in steel demand was fixed by the December rate. Now there are some fragmentary reports of slight decreases in mill operations. They are not comprehensive, but there is room for suspicion that steel is not moving at as good a pace as was contemplated by the forecasts made so generally in December, that the year in steel, or at least the half year, was going to be a very active one indeed.

The Steel corporation's unfilled obligations increased 132,775 tons during January, against an increase of 303,712 tons in December, while October and Novem-

LEGAL

DEPARTMENT OF THE INTERIOR
Call for Bids

To Purchase Government Royalty Oil from SE¼, Sec. 2, T. 22s, R. 17e, M. D. M., Kettleman Hills Oil Field, California (Milham Exploration Company).

Pursuant to the provisions of Section 36 of the act of Congress approved February 25, 1920 (41 Stat., 437), sealed proposals in duplicate will be received in the office of the Secretary of the Interior, Interior Department Building, Washington, D. C., on or before noon of March 1, 1929, from responsible bidders for the purchase for a period of one year beginning April 1, 1929, of royalty oil accruing to the United States (at present from one well) from the SE¼, Sec. 2, T. 22 S., R. 17 E., M.D.M., in the Kettleman Hills Oil Field, California, held by the Milham Exploration Company. The approximate quality of the oil to be sold is indicated by the following results obtained from a laboratory test: gravity, about 59 degrees A.P.I.; 89 per cent gasoline stock (437° F.); 8 per cent kerosene and fuel oil; 3 per cent distillation loss. The Government's royalty oil amounts to approximately 200 barrels a day and will probably suffer gradual decline until additional producing wells are drilled upon the tract. Bids must be based upon the highest posted field price for oil of 25.0 to 25.9 A.P.I. gravity in the Midway-Sunset field, California, and must be stated as a differential in cents per barrel from such posted price. Delivery of royalty oil will be made without cost to the Government on the said SE¼, Sec. 2, for the account of the successful bidder by segregation in royalty tanks or by direct pipe line run as an undivided portion of production as the Government may elect. Payments for the royalty oil are to be made to the Register of the United States Land Office at Sacramento, California, on or before the fifteenth (15th) day of each month following that in which delivery is made, the quantity of the oil to be determined by tank measurement corrected for impurities found by test and the volume computed in terms of standard barrels at 60° F. Each bid must be accompanied by a certified check payable to the order of the Secretary of the Interior, in the sum of $1,000 as a guarantee that the bidder will, if successful, promptly execute a satisfactory contract and furnish a bond in the sum of $40,000 conditioned upon full and complete compliance with the terms of the contract. The Secretary of the Interior may accept any bid which in his judgment is most advantageous to the Government, and reserves the right to reject all bids. Sealed bids are to be submitted to the Secretary, Department of the Interior, Washington, D. C., the envelope to be marked plainly, "Bid on Kettleman Hills royalty oil." No bid received after the time herein fixed for submitting bids will be considered. Additional information can be obtained from the Geological Survey, Department of the Interior, Washington, D. C., or from the field office of the Geological Survey at Taft, California.

(Sgd.) ROY O. WEST,
Secretary of the Interior.

January 24, 1929.

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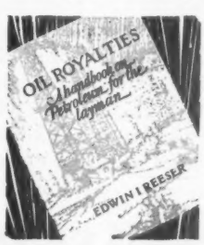

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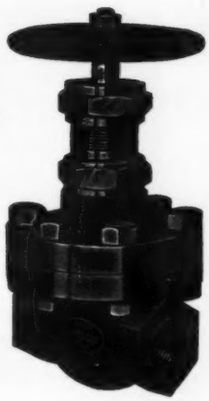

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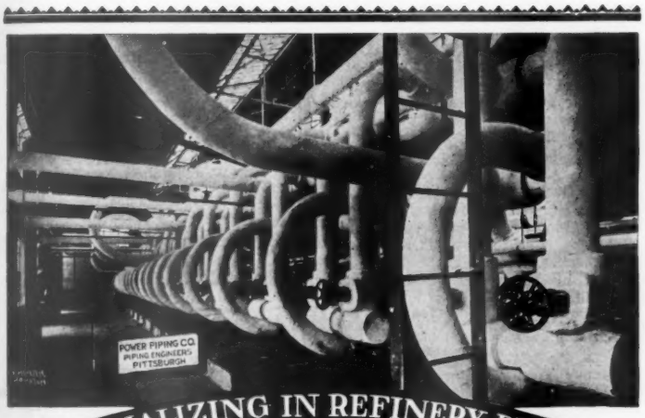

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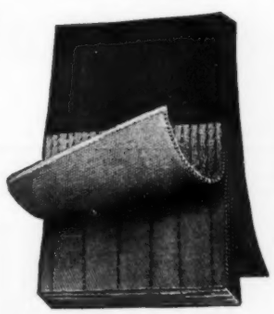

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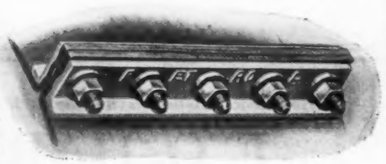

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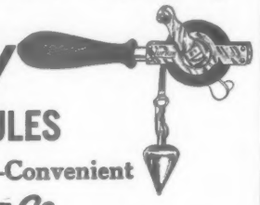

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ber between them had shown a slight loss. Ordinarily, January does well to show an increase, because quarterly contracts are commonly made the month preceding, and then when there are shipments against the contracts, that operates as a loss in unfilled obligations. However, considering the large amount of annual rail buying in October, November and December, the quarter's increase was a small one and January needed some extra bookings to make up. It must be remembered that these monthly reports are not of "unfilled orders" as sometimes erroneously stated, but are of obligations, including contracts which do no good except as specifications for shipments are subsequently filed against them. A mill may have a large volume of contract obligations and yet not enough shipping orders to run full. Cases are reported of a mill being under pressure from customers to make quicker deliveries and yet not having a total of shipping orders equal to capacity operation for two weeks.

Information as to the state of the steel trade and its prospects coming from different sources show much inconsistency and the future is really quite uncertain, even the next few weeks. On the one hand various finishing departments seem to be crowedd to make shipments, while on the other hand consumers do not seem to be able to look any distance ahead.

Freight car buying has been a bright spot. The Illinois Central has ordered 2,900 cars, making nearly 24,000 cars ordered since January 1, and in the late weeks of last year about 14,500 were ordered, making over 38,000 cars in the movement to date. This is a good rate, but it needs to be continued for some time to make a good volume of business at long range.

Automobile and truck production in the United States and Canada in January appears to have exceeded 400,000, making a remarkable month, but the puzzle is to determine whether this is setting a remarkably good pace for the year or represents some overproduction, which would interfere with the usual seasonal increase after January. It is known that some makes of cars have not been selling well.

There is talk of advancing sheet and strip prices for second quarter.

MEXICAN OIL EXPORTS IN DECEMBER DECLINE

Exports of light and heavy crude, topped crude and distillates from Mexico in December totaled 1,940,318 bbls., a decrease of 499,139 from November, and a decrease of 934,324 from December, 1927. Pan American was the largest shipper in December, with 637,118 bbls., a decrease of 118,538 from November. Mexican Eagle Oil Co. was second with 301,402 bbls., a decrease of 92,412 in the month.

Exports by companies in December, were as follows (in bbls.):

	Dec., 1928	Nov., 1928
Pan American	637,118	755,656
Mexican Eagle	301,402	393,814
Standard of N. J.	227,695	662,326
Sinclair	296,898	280,108
Empire Gas & Fuel	155,033	120,658
Penn Mex Fuel	76,804	.....
Royal Dutch	69,031	60,078
Texas Corp.	68,540	63,806
Gulf Oil	74,502	50,213
Pierce Oil	.....	4,725
Mexican Atlas	33,295	48,073
Total	1,940,318	2,439,457

THOMAS KNAPP DIES

CHATHAM, Ontario, Feb. 16.—Word has been received in Petrolia of the death recently at Saskatoon, Saskatchewan, of Thomas Knapp, aged 63, a native of the Petrolia Field, and for many years a well-known driller. Mr. Knapp made his headquarters at Copleston, Ontario, and after drilling in the Canadian fields made several trips to foreign fields.

LEGAL

DEPARTMENTAL OIL AND GAS MINING LEASES

Will be sold at Public Auction at the Kiowa Indian Agency, Anadarko, Oklahoma, February 21, 1929. Land located in Comanche, Cotton, Caddo, Grady and Stephens Counties, Oklahoma. For description of land and further information, write J. A. BUNTIN, Dist. Superintendent, Kiowa Indian Agency, Anadarko, Oklahoma.

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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for December

Runs

Company—	Month bbls.	Dly. av. bbls.
Prairie P. L. Co.*	4,696,500	151,500
Gulf P. L. Co.	1,379,159	44,489
Texas P. L. Co.	1,020,588	32,922
Magnolia P. L. Co.	2,291,282	73,912
Empire P. L. Co.	976,748	31,508
Cosden P. L. Co.	888,912	28,674
Sinclair P. L. Co.*	3,295,300	106,300
Oklahoma P. L. Co.	3,333,998	107,548
Other lines	7,533,000	243,000
Total December	25,415,487	819,853
Total November	25,052,782	835,092
Difference	362,705	15,239

Shipments

Prairie P. L. Co.†	5,985,263	193,073
Gulf P. L. Co.	1,656,721	53,443
Texas P. L. Co.	1,093,308	35,268
Magnolia Pet. Co.	2,103,278	67,848
Empire P. L. Co.	763,096	24,616
Cosden P. L. Co.	798,847	25,769
Sinclair P. L. Co.†	3,421,101	110,359
Oklahoma P. L. Co.	3,144,586	101,438
Other lines	7,440,000	240,000
Total December	26,406,200	851,814
Total November	25,809,577	860,315
Difference	596,623	8,501

Stocks

Prairie O. & G. Co.	31,825,000
Prairie P. L. Co.	2,750,000
Gulf P. L. and Gypsy Oil Cos.	9,832,133
The Texas Company	7,824,740
Magnolia Pet. Co.	9,463,184
Empire P. L. Co.	3,866,000
Mid-Continent Pet. Corp.	3,713,359
Carter Oil Co.	12,111,702
Oklahoma P. L. Co.	3,206,717
Sinclair Crude Oil Pur. Co.	20,630,000
Other lines	11,700,000
Total December	116,940,815
Total November	116,225,310
Difference	715,505

*Estimated. †Prairie and Sinclair shipments include Kansas, Oklahoma and Texas crude oil.

Note—Stocks do not include approximately 5,000,000 bbls. held in storage on private tank farms and leases.

EASTERN PIPE LINE REPORT

Runs from Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio Kentucky and Indiana for December and January:

	Dec., 1928	Jan., 1929
Nat. Transit	145,961.90	136,672.42
S. W. Pa. P. L.	90,632.07	99,615.87
Eureka P. L.	334,400.38	352,729.30
Buckeye P. L. (Macksb'g)	321,746.10	330,659.13
Buckeye P. L. (Cleve)	11,670.01	11,137.67
Buckeye P. L. (Lima etc.)	102,544.02	90,382.06
Indiana P. L.	5,869.25	4,133.22
Cum'land P. L.	198,838.68	195,655.99
N. Y. Transit	26,551.67	26,987.20
Tidewater P. L.	222,437.71	201,809.34
Pure Oil	58,931.42	63,975.76
Emery P. L.	62,842.83	64,263.32
Paragon Dev.	21,324.31	17,582.64
Stoll Oil Ref.	9,023.98	8,337.71
Total	1,612,774.33	1,604,241.63
Daily average	52,024.98	51,749.73

Note—Indian Refining Co. also reported other receipts of 341,102.36 bbls. Paragon Refining Co. had other receipts of 188,650.77 bbls. Paragon Development had other receipts of 373.72 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, and Kentucky for December and January:

	Dec., 1928	Jan., 1929
Nat. Transit	565,441.11	572,124.61
S. W. Pa. P. L.	472,797.78	438,318.41
Eureka P. L.	218,228.06	223,981.34
Buckeye P. L. (Macksb'g)	163,839.57	193,196.90
Buckeye P. L. (Cleve)	2,189.40	2,667.94
Buckeye P. L. (Lima, etc.)	1,389,409.84	1,292,954.24
Indiana P. L.	1,426,008.91	1,426,599.14
Cum'land P. L.	215,190.79	175,926.75
Southern P. L.	39,859.78	.....
N. Y. Transit	189,477.21	188,973.27
Northern P. L.	173,728.49	131,681.47
Tidewater P. L.	184,601.11	164,335.93
Pure Oil	62,742.21	60,320.01
Emery P. L.	60,747.88	58,403.16
Paragon Ref.	195,558.59	188,650.77
Paragon Dev.	21,911.78	19,225.73
Total	5,381,733.51	5,137,359.67
Daily average	173,572.05	165,721.28

Indian Refining Co. reported other deliveries of 315,028.81 bbls.

Gross Stocks

The gross stocks held by various pipe lines in the oil-producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana, and Kentucky at the close of December and January:

	Dec., 1928	Jan., 1929
Nat. Transit	863,001.46	812,449.58
S. W. Pa. P. L.	429,283.61	405,706.51
Eureka P. L.	1,166,151.69	1,186,389.53
Buckeye P. L. (Macksb'g)	558,828.02	539,030.90
Buckeye P. L. (Cleve)	33,233.02	58,406.82
Buckeye P. L. (Lima, etc.)	2,326,759.46	2,223,198.38
Indiana P. L.	503,036.50	520,629.71
Cum'land P. L.	504,540.79	527,107.30
Southern P. L.	380,167.89	531,254.68
N. Y. Transit	307,858.74	265,636.20
Northern P. L.	367,722.48	389,493.68
Pure Oil	11,641.89	16,499.34
Emery P. L.	13,422.06	19,132.04
Paragon Ref.	21,092.45	21,287.75
Indian Ref.	46,060.23	74,153.69
Paragon Dev.	6,754.88	6,187.72
Total	7,539,555.17	7,596,563.63
Decrease	826,998.21	.....
Increase	.....	57,008.46

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of December and January showing the gross stocks of the above fields:

	Dec., 1928	Jan., 1929
Pennsylvania	2,927,805.85	2,988,208.30
Lima	734,379.46	696,840.58
Kentucky	722,193.76	755,304.30
Mid-Continent	3,118,706.55	3,070,290.16
Illinois	36,469.55	85,920.29
Total	7,539,555.17	7,596,563.63

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1926	1927	1928	1929
Jan.	55,630	56,209	52,904	51,749
Feb.	60,394	61,298	57,002	.....
Mar.	61,644	63,247	57,485	.....
April	63,019	60,927	56,812	.....
May	60,580	60,284	62,067	.....
June	61,121	62,757	58,230	.....
July	63,206	58,674	57,144	.....
Aug.	61,815	60,870	57,745	.....
Sept.	64,629	60,285	53,487	.....
Oct.	161,132	147,080	58,100	.....
Nov.	67,774	57,275	53,565	.....
Dec.	58,755	53,980	52,025	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1926	1927	1928	1929
Jan.	156,056	141,227	146,465	165,721
Feb.	159,488	138,534	167,368	.....
Mar.	150,239	133,777	158,883	.....
April	152,374	140,227	172,935	.....
May	160,998	144,594	180,559	.....
June	160,257	149,772	188,024	.....
July	160,045	151,850	189,470	.....
Aug.	151,929	188,653	192,853	.....
Sept.	158,915	144,213	194,138	.....
Oct.	161,132	147,036	176,000	.....
Nov.	172,608	150,975	176,898	.....
Dec.	136,428	144,504	173,572	.....

Gross Stocks

In the following table will be found gross stocks of the various lines of Pennsylvania, Lima and Kentucky oil including oil received from other lines the close of each month for the past years:

	1927	1928
Jan.	9,718,008	12,276,710
Feb.	10,119,162	12,180,419
Mar.	10,794,044	12,239,735
April	11,112,295	11,740,125
May	11,359,381	11,602,468
June	11,493,673	11,287,678
July	11,458,128	10,819,331
Aug.	11,989,115	10,236,742
Sept.	12,212,716	9,660,910
Oct.	12,047,661	9,229,709
Nov.	11,939,740	8,366,552
Dec.	12,340,297	7,539,555

Franklin Pipe Line Co.

The following table exhibits the tion of the Franklin Pipe Line at the of business for the months named counted in the stocks and averages ported above:

1928—	Runs	Shipments
Feb.	2,460.14	3,109.34
March	2,578.86	3,540.33
June	3,153.08	2,779.02
July	2,902.50	3,628.02
Aug.	2,874.11	2,350.13
Sept.	2,820.31	5,255.42
Oct.	1,289.93	538.89
Nov.	2,663.53	788.47
Dec.	3,053.60	3,167.53
1929—		
Jan.	2,099.90	.....

The Illinois Field

The following table gives the repor the Illinois Pipe Line Co. in Illinois:

Gross stocks, Feb. 1	
Runs from wells	
Other receipts	
Regular deliveries	
Other deliveries	

The amount of Illinois oil run by Tidewater Pipe Co. in January was 611.96 bbls. Deliveries were 63,767.69 Adding these figures to those of the nois Pipe Line Co. makes the runs and liveries as follows:

1928—	Runs	Deliv
February	573,619.78	
March	725,250.82	
April	526,013.13	
May	632,968.64	
June	608,552.49	
July	612,286.49	
August	639,074.85	
September	570,307.91	
October	626,147.64	
November	576,332.88	
December	584,633.00	
1929—		
January	570,727.38	

Tidewater Pipe Co., Ltd., also deliv in January, 194,517.25 bbls. Oklahoma o

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

Average bbls. per day—	Atlantic Ports: Baltimore	Boston	New York	Philadelphia	Others	Total	Gulf Coast Ports: Galveston	New Orleans Port Arthur Baton Rouge Sabine Pass	Tampa	Total	Total all ports
July	19,807	2,903	8,774	20,419	2,453	54,355	.....	.....	.....	.....	.....
August	18,161	3,613	27,774	17,677	3,419	69,645	.....	.....	.....	806	806
September	11,100	.....	18,967	38,200	6,700	74,967	.....	.....	.....	.....	.....
October	17,323	.....	11,807	6,483	.....	.....	.....	.....	.....	.....	.....
November	21,333	5,200	25,400	13,200	7,100	77,233	.....	.....	.....	1,000	
December	4,968	2,968	24,678	13,806	3,064	54,484	.....	.....	.....	2,419	

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	Atlantic Ports: Baltimore	Boston	New York	Philadelphia	Others	Total	Gulf Coast Ports: Galveston	New Orleans Port Arthur Baton Rouge Sabine Pass	Tampa	Total	Total all ports
July	23,484	14,548	111,903	37,678	21,452	209,065	9,355	25,000	774	35,129	
August	25,290	16,323	123,226	21,613	7,194	193,645	.....	38,677	613	39,290	
September	22,933	19,100	110,467	30,700	14,333	197,533	6,367	41,300	6,333	1,667	55,667
October	20,161	16,839	128,452	27,710	7,098	200,255	.....	32,226	3,065	1,612	36,903
November	18,400	16,033	133,700	30,267	8,433	206,833	1,333	37,167	4,633	.....	43,133
December	15,419	15,968	140,871	42,323	8,709	223,290	2,903	35,129	2,355	.....	40,387

GROSS PRODUCTION IN UNITED STATES FOR 12 MONTHS (Revised)

(In barrels of 42 gallons)

		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
January:	Month	19,028,228	20,978,320	20,060,311	3,319,325	2,791,922	1,807,061	2,429,375	3,134,000	
	Daily average	613,814	676,720	647,107	107,075	90,061	58,292	78,367	101,097	
February:	Month	18,033,459	19,294,426	19,673,396	3,079,887	2,571,575	1,734,207	2,230,887	3,166,000	
	Daily average	622,016	665,324	678,565	106,203	88,675	59,800	76,927	109,173	
March:	Month	19,118,324	20,162,524	21,542,865	3,379,031	2,687,948	1,866,106	2,401,911	3,522,000	
	Daily average	616,720	650,404	694,931	109,001	86,708	60,197	77,481	113,613	
April:	Month	18,280,729	19,096,920	21,876,913	3,412,260	2,472,600	1,912,187	2,370,810	3,231,000	
	Daily average	609,357	636,564	729,230	113,742	82,420	63,740	79,027	107,700	
May:	Month	19,331,866	19,443,355	21,220,046	3,367,809	2,843,847	1,926,026	2,525,043	3,619,000	
	Daily average	623,609	627,205	684,518	108,639	91,737	62,130	81,447	116,742	
June:	Month	19,164,244	18,482,931	19,877,936	3,202,050	3,075,911	2,074,422	2,425,470	3,401,000	
	Daily average	638,808	616,099	662,598	106,735	102,530	69,147	80,849	113,367	
July:	Month	19,754,458	18,809,188	22,055,737	3,171,548	2,792,139	2,238,090	2,492,586	3,487,000	
	Daily average	637,241	606,748	711,475	102,308	90,069	72,131	80,406	112,484	
August:	Month	19,444,899	20,840,804	22,339,131	3,147,058	2,711,787	1,989,264	2,561,840	3,556,000	
	Daily average	627,255	672,284	720,448	101,518	87,477	64,170	82,640	114,709	
September:	Month	18,908,169	22,456,860	21,554,269	3,047,250	2,540,070	1,830,225	2,432,430	3,229,000	
	Daily average	630,272	748,562	718,207	101,575	84,669	61,007	81,047	104,300	
October:	Month	19,420,992	23,431,071	22,176,853	3,058,460	2,652,484	1,836,221	2,571,322	3,612,000	
	Daily average	626,806	755,841	715,376	98,660	85,564	59,233	82,962	116,516	
November:	Month	19,907,526	22,078,680	20,791,798	2,977,800	2,476,080	1,801,914	2,388,870	3,348,000	
	Daily average	663,584	735,956	693,059	99,260	82,536	60,064	79,629	111,600	
December:	Month	21,574,703	22,425,722	22,180,102	2,988,400	2,521,571	1,846,841	2,289,040	3,581,000	
	Daily average	695,958	723,410	715,487	96,400	81,341	59,576	73,840	115,516	
	Total 12 months	231,982,597	247,500,851	255,354,357	38,150,878	32,137,934	22,862,564	29,120,084	40,886,000	
	Daily average	633,832	676,232	697,690	104,237	87,809	62,466	79,563	111,710	